



DLP PROJECTOR

SERVICE MANUAL

MODEL : RD-JT50/51/52

CAUTION

BEFORE SERVICING THE PROJECTOR,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



Contents

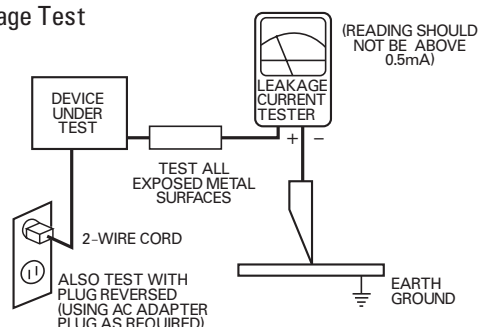
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SAFETY PRECAUTIONS

1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:
 - a. Be sure that no built-in protective devices are defective and/or have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assemblies in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.**
 - b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet back, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
 - c. **Antenna Cold Check**-With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
 - d. **Leakage Current Hot Check**-With the instrument completely reassembled, plug the AC line cord directly into a 120 V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screwheads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milliamp. Reverse the instrument power cord plug in the outlet and repeat the test.

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER.

AC Leakage Test



- e. **X-Radiation and High Voltage Limits**-Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servicing is done that involves B+, horizontal deflection, or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time

they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold-down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close-tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.
3. **Design Alteration Warning**- Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to, circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and will make you, the servicer responsible for personal injury or property damage resulting therefrom.
4. **Picture Tube Implosion Protection Warning**-The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type and number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.
5. **Hot Chassis Warning**-a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safely serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0 V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground. b. Some TV receiver chassis normally have 85 V AC (RMS) between chassis and earth ground regardless of the AC plug polarity. These chassis can be safely serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection. c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.
6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: a. near sharp edges, b. near thermally hot parts- be sure that leads and components do not touch, c. the AC supply, d. high voltage, and e. antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between components, and between components and the printed circuit board. Check the AC power cord for damage.
7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. PRODUCT SAFETY NOTICE

Some electrical and mechanical parts have special safety related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, by a ★, or by Δ on schematics and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement parts might create shock, fire, and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service manual and its supplements, read and follow the **SAFETY PRECAUTIONS** section of this manual. **Note:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, **always follow the safety precautions.** Remember: Safety First.

General Servicing Precautions

1. a. Always unplug the instrument AC power cord from the AC power source before: (1) removing or reinstalling any component, circuit board, module, or any other instrument assembly. (2) disconnecting or reconnecting any instrument electrical plug or other electrical connections. (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

- b. Do **not** defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
- c. Do **not** apply AC power to this instrument and/or any of its electrical assemblies unless **all** solid-state device heat sinks are correctly installed.
- d. Always connect a test instrument's ground lead to the instrument chassis ground **before** connecting the test instrument positive lead.
Always remove the test instrument ground lead last.

Note: Refer to the Safety Precautions section of this manual.

2. The service precautions are indicated or printed on the cabinet, chassis, or components. When servicing, follow the printed or indicated service precautions and service materials.
3. The components used in the unit have a specified flame resistance and dielectric strength. When replacing any components, use components which have the same ratings. Components identified by shading, by ★, or by Δ in the circuit diagram are important for safety or for the characteristics of the unit. Always replace with the exact replacement components.
4. An insulation tube or tape is sometimes used and some components are raised above the printed wiring board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install them as they were.
5. After servicing, always check that the removed screws, components, and wiring have been installed correctly and that the portion around the service part have not been damaged. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

INSULATION CHECKING PROCEDURE

Disconnect the attachment plug from the AC outlet and turn the power on. Connect the insulation resistance meter (500 V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1 Mohm.

Note: Accessible conductive parts include metal panels, input terminals, earphone jacks, etc.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on the body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
Caution: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise, seemingly harmless motion, such as the brushing together of your clothing or the lifting of your foot from a carpeted floor, can generate static electricity sufficient to damage an ES device.)

3. Specifications

Projector Specification for JT51

Technical Specifications

Note: All specifications are subject to change without notice

General

Product name	Personal Projector
Model name	RD-JT51 800*600 SVGA

Optical

Display system	1-CHIP DMD
Lens F/Number	F/2.6
Lamp	200W NSH LAMP

Electrical

Power supply	AC100~240V, 3.2A, 50/60 Hz (Automatic)
Power consumption	285W(Max)

Mechanical

Dimensions	302.3mm (W) ×91.7mm (H) ×216.3mm (D)
Operating temperature range	0°C ~ 40°C
Weight	6.6 lbs (3.0 Kg)

Input terminal

Computer input	
D-SUB IN	D-sub 15-pin (female)
Video signal input	
S-VIDEO	Mini DIN 4-pin port x1
VIDEO	RCA jack x1
HDTV signal input	D-sub<-> YpbPr RCA jack x3, through D-SUB IN terminal

Projector Specification for JT50/52

Technical Specifications

Note: All specifications are subject to change without notice

General

Product name	Personal Projector		
Model name	RD-JT50	1024*768	XGA
	RD-JT52	1024*768	XGA

Optical

Display system	1-CHIP DMD
Lens F/Number	F/2.6
Lamp	250W UHP LAMP

Electrical

Power supply	AC100~240V, 4.0A, 50/60 Hz (Automatic)
Power consumption	330W(Typical)

Mechanical

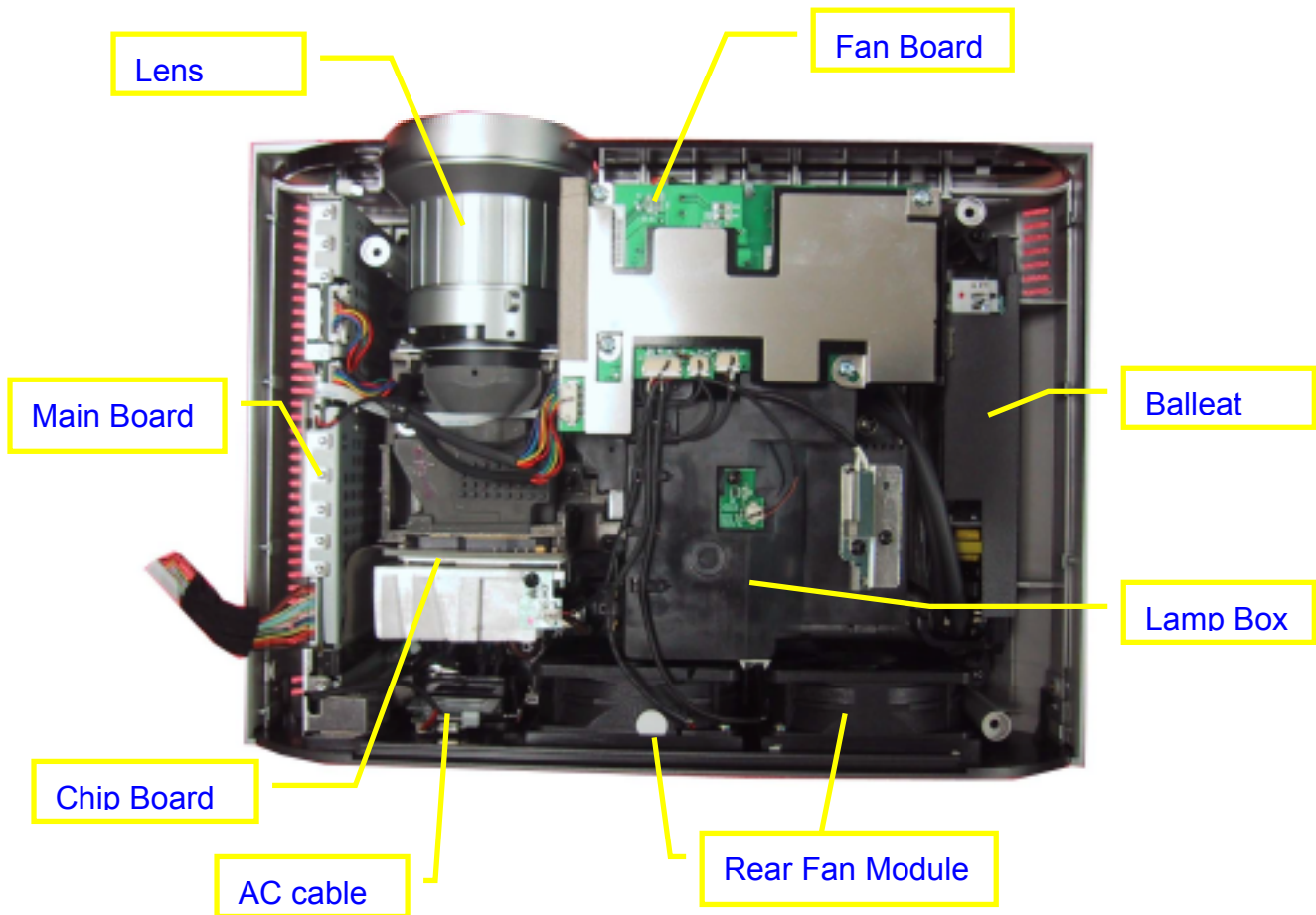
Dimensions	302.3mm (W) ×91.7mm (H) ×216.3mm (D)
Operating temperature range	0°C ~ 35°C
Weight	6.6 lbs (3.0 Kg)

Input terminal

Computer input	
D-SUB IN	D-sub 15-pin (female)
DVI-D	DVI-D 19-pin(female)
Video signal input	
S-VIDEO	Mini DIN 4-pin port x1
VIDEO	RCA jack x1
HDTV signal input	D-sub<-> YpbPr RCA jack x3, through D-SUB IN Terminal
Audio signal input	
Audio	Mini jack stereo port
Output	
USB mouse connector	A/B series x 1
Speaker	2 watt x1
Control	
RS-232C	9-pin x1

4. Exploded View

The illustration shows exploded view of JT 51 projector. You can see the major components and optical engine.



5. Replacement Parts List

LG RD-JT51 99.J8677.L18

NO.	BenQ P/N	LG P/N	DESCRIPTION
1	55.J7612.051	6871VSN257B	PCBA KEYPAD BD PB7200 LG JT50
2	60.J7635.001	5020V00811B	ASSY BUTTON JT50
3	60.J7668.001	3110V00320M	ASSY SUB U/C JT51
4	23.10103.001	5900V03002H	FAN 12V 70*70*25AXIAL ADDA
5	60.J7653.001	3720V00205G	ASSY REAR COVER JT51
6	60.J8618.CG1	6912B22006D	ASSY SERVICE LAMP PB6100
7	55.J8620.001	6871VSN257E	PCBA EMI BD PB6100
8	60.J7650.001	3110V00321G	ASSY L/C JT51
9	55.J8608.001	6871VSN257K	PCBA REAR IR BD PB6100
10	54.J8612.001	6316000005D	BALLAST PHG201G16 PB6100
11	55.J8601.051	6871VMN657L	PCBA M/BD PB6100 LG JT51
12	60.J7619.001	3580V00094J	ASSY DOOR JT51 PB7200
13	60.J8617.002	4810V00854F	ASSY LAMP BOX PB6100
14	55.J1313.001	6871VSN257G	PCB 1L SENSOR-B BD SL700 X MI
15	65.J8603.001	3680V00118D	CW DIA44DEG110 PB6100 PRODISC
16	23.10102.002	5900V03002J	BLOWER 12V 50*50*20MM ADDA
17	60.J8640.001	3680V00075D	ASSY S2+ EGN 12D JT51
18	55.J8623.001	6871VSN257F	PCBA CHIP BD PB6100
19	65.J7605.001	3680V00116G	PROJECTION LENS ZOOM JT50 ASI
20	71.08060.000	6871VSN271A	IC DMD 0.6SVGA 8060-624C 12DD
21	55.J5019.001	6871VSN257J	PCBA THERMAL BD DX850
22	60.J7641.001	4810V00854D	ASSY BAR LONG JT50
23	60.J7642.001	4810V00854E	ASSY BAR SHORT JT50
24	60.J7664.001	3550V00343B	ASSY LENS CAP JT50
25	60.J8613.001	6871VPM998B	ASSY POWER MODULE PB6100
26	65.J5003.001	4778V00084B	FOOT ADJ DX850
27	44.J3401.091	3890V01751H	CTN 440*435*260 JT50/LG
28	49.J8602.002	3828VA0413G	MANUAL USER LG RD-JT51 PB6100
29	27.01018.000	6410VWH015A	CORD H05VV-F 13A250V 1830MM U
30	27.01418.041	6410VWH051L	CORD H05VV3G 16A 250V S-AFRI

31	27.01818.000	6410VWH015B	CORD SVT#18*3C 10A125V 1830US
32	27.82718.281	6410VWH015C	CORD H05VV-F 10A250V EUR BLK
33	50.72920.011	6851V00021L	C.A MIN-DIN 4P S-VIDEO W/S 15
34	50.J1303.501	6851V00021S	CABLE RCA Y/Y 1600MM BLK
35	50.J2403.501	6851V00021H	SIGNAL/C 15/15P (-9) 2500MM
36	56.26J86.011	6710V00106B	REMOTE CTR JT51 SVGA (LG)-CR1

LG RD-JT50 99.J7677.L88

NO.	BenQ P/N	LG P/N	DESCRIPTION
1	60.J5016.CB1	6912B22006C	ASSY CSD LAMP PB7200/7100
2	55.J7612.051	6871VSN257B	PCBA KEYPAD BD PB7200 LG JT50
3	60.J7635.001	5020V00811B	ASSY BUTTON JT50
4	60.J7668.011	3110V00320K	ASSY SUB U/C JT50
5	23.10099.011	5900V03002F	FAN 12V70*70*25 2810KL-04W NM
6	60.J7653.011	3720V00205F	ASSY REAR COVER JT50
7	55.J7601.051	6871VMN657K	PCBA MAIN BD PB7200 LG JT50
8	55.J7614.051	6871VSN257C	PCBA INPUT BD PB7200 LG JT50
9	55.J7622.051	6871VSN257D	PCBA EXT. BD PB7200 LG JT50
10	54.J3712.001	6316000005C	BALLAST 250W EUC 250 P/00
11	55.J8620.001	6871VSN257E	PCBA EMI BD PB6100
12	60.J7650.011	3110V00321F	ASSY L/C JT50
13	23.10090.001	5900V03002G	BLOWER DC 12V GB1205PKV1-8AY
14	60.J7647.001	3680V00075C	ASSY OPTICAL ENGINE JT50
15	55.J8623.001	6871VSN257F	PCBA CHIP BD PB6100
16	65.J7605.001	3680V00116G	PROJECTION LENS ZOOM JT50 ASI
17	71.07XGA.B00	6871VSN271B	IC DMD 0.7XGA DDR 12
18	60.J7654.001	3580V00094H	ASSY DOOR JT50
19	60.J7671.001	4810V00854C	ASSY LAMP BOX JT50
20	55.J1313.001	6871VSN257G	PCB 1L SENSOR-B BD SL700 X MI
21	65.J4001.103	3680V00118C	CW DIA44 DEG90 DX850 PRODISC
22	55.J5019.001	6871VSN257J	PCBA THERMAL BD DX850
23	60.J7640.001	6871VSN257H	ASSY PFC+FAN BD JT50/52 PB720
24	60.J7641.001	4810V00854D	ASSY BAR LONG JT50
25	60.J7642.001	4810V00854E	ASSY BAR SHORT JT50
26	60.J7664.001	3550V00343B	ASSY LENS CAP JT50

27	65.J5003.001	4778V00084B	FOOT ADJ DX850
28	44.J3401.091	3890V01751H	CTN 440*435*260 JT50/LG
29	47.J7612.001	3920V00533E	CUSHION RIGHT EPE JT50
30	47.J7619.001	3880VA0026B	BAG CARRY JT50
31	49.J7603.002	3828VA0413F	MANUAL USER LG RD-JT5052
32	50.72920.011	6851V00021L	C.A MIN-DIN 4P S-VIDEO W/S 15
33	50.73213.501	6851V00021G	CABLE 4P USB A-B 1800MM BLACK
34	50.J1303.501	6851V00021S	CABLE RCA Y/Y 1600MM BLK
35	50.J1311.001	6851V00021T	CABLE RCA R/W-AUDIO 200MM
36	50.L5702.201	6851V00021W	SIGNAL DVI-D/DVI-D 002 2000MM
37	98.J3403.001	6710V00106A	REMOTE CONTROLLER DXS660 LG
38	27.01018.000	6410VWH015A	CORD H05VV-F 13A250V 1830MM U
39	27.01418.041	6410VWH015L	CORD H05VV3G 16A 250V S-AFRI
40	27.01818.000	6410VWH015B	CORD SVT#18*3C 10A125V 1830US
41	27.82718.281	6410VWH015C	CORD H05VV-F 10A250V EUR BLK
42	50.74405.501	6851V00021M	CABLE AUD PC99PT284C/PT577C B
43	50.J2401.001	6851V00021U	CABLE D-SUB/RCA 1800MM/SL705X
44	50.J2403.501	6851V00021H	SIGNAL/C 15/15P (-9) 2500MM

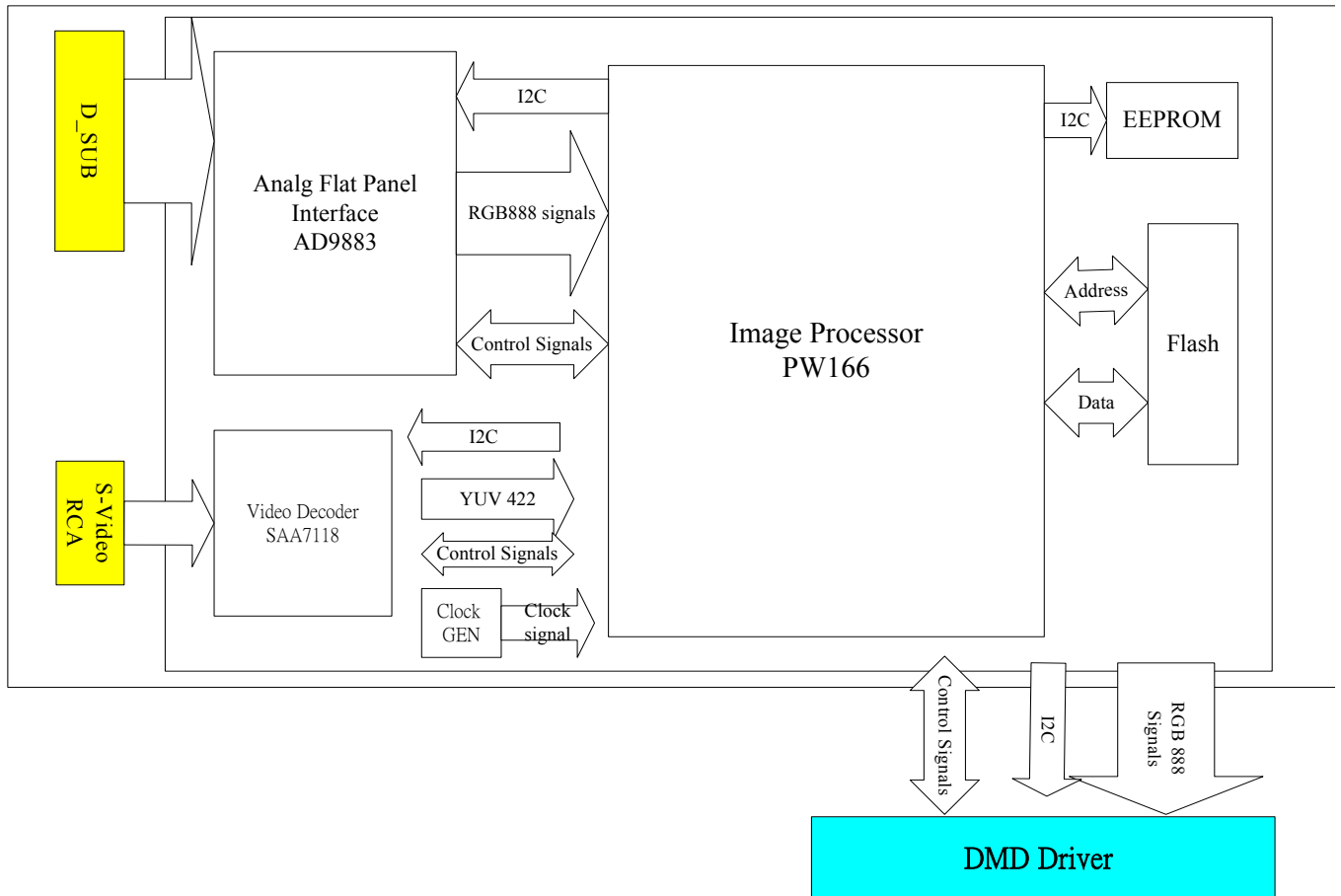
LG RD-JT52 99.J7777.L88

NO.	BenQ P/N	LG P/N	DESCRIPTION
1	60.J5016.CB1	6912B22006C	ASSY CSD LAMP PB7200/7100
2	55.J7612.051	6871VSN257B	PCBA KEYPAD BD PB7200 LG JT50
3	60.J7635.001	5020V00811B	ASSY BUTTON JT50
4	60.J7668.021	3110V00320L	ASSY SUB U/C JT52
5	23.10099.011	5900V03002F	FAN 12V70*70*25 2810KL-04W NM
6	60.J7653.011	3720V00205F	ASSY REAR COVER JT50
7	55.J7601.051	6871VMN657K	PCBA MAIN BD PB7200 LG JT50
8	55.J7614.051	6871VSN257C	PCBA INPUT BD PB7200 LG JT50
9	55.J7622.051	6871VSN257D	PCBA EXT. BD PB7200 LG JT50
10	54.J3712.001	6316000005C	BALLAST 250W EUC 250 P/00
11	55.J8620.001	6871VSN257E	PCBA EMI BD PB6100
12	60.J7650.011	3110V00321F	ASSY L/C JT50
13	23.10090.001	5900V03002G	BLOWER DC 12V GB1205PKV1-8AY
14	60.J7647.001	3680V00075C	ASSY OPTICAL ENGINE JT50

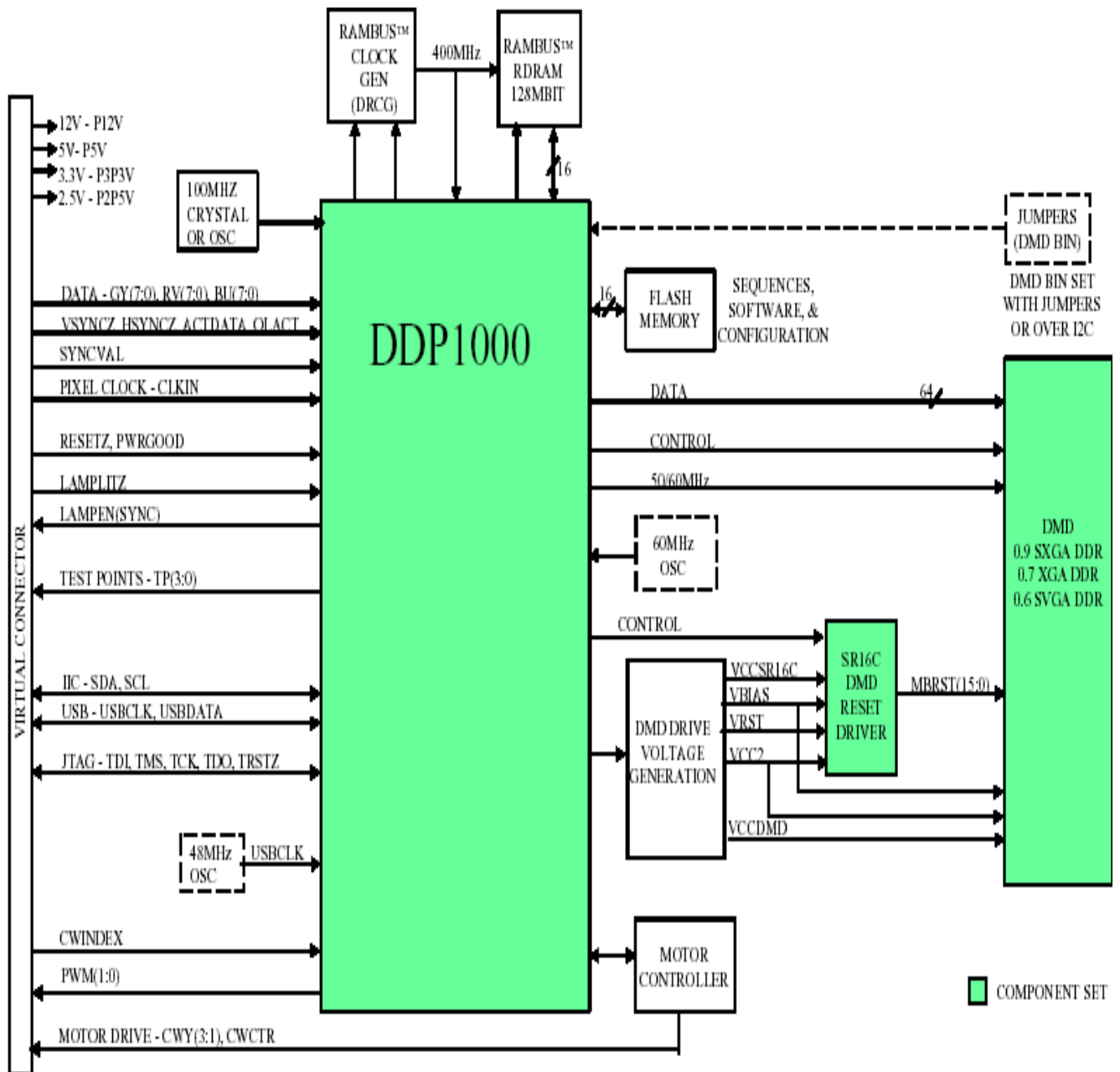
15	55.J8623.001	6871VSN257F	PCBA CHIP BD PB6100
16	65.J7605.001	3680V00116G	PROJECTION LENS ZOOM JT50 ASI
17	71.07XGA.B00	6871VSN271B	IC DMD 0.7XGA DDR 12
18	60.J7654.001	3580V00094H	ASSY DOOR JT50
19	60.J7671.001	4810V00854C	ASSY LAMP BOX JT50
20	55.J1313.001	6871VSN257G	PCB 1L SENSOR-B BD SL700 X MI
21	65.J4001.103	3680V00118C	CW DIA44 DEG90 DX850 PRODISC
22	55.J5019.001	6871VSN257J	PCBA THERMAL BD DX850
23	60.J7640.001	6871VSN257H	ASSY PFC+FAN BD JT50/52 PB720
24	60.J7641.001	4810V00854D	ASSY BAR LONG JT50
25	60.J7642.001	4810V00854E	ASSY BAR SHORT JT50
26	60.J7664.001	3550V00343B	ASSY LENS CAP JT50
27	65.J5003.001	4778V00084B	FOOT ADJ DX850
28	44.J3401.091	3890V01751H	CTN 440*435*260 JT50/LG
29	47.J7612.001	3920V00533E	CUSHION RIGHT EPE JT50
30	47.J7619.001	3880VA0026B	BAG CARRY JT50
31	49.J7603.002	3828VA0413F	MANUAL USER LG RD-JT5052
32	50.72920.011	6851V00021L	C.A MIN-DIN 4P S-VIDEO W/S 15
33	50.73213.501	6851V00021G	CABLE 4P USB A-B 1800MM BLACK
34	50.J1303.501	6851V00021S	CABLE RCA Y/Y 1600MM BLK
35	50.J1311.001	6851V00021T	CABLE RCA R/W-AUDIO 200MM
36	50.L5702.201	6851V00021W	SIGNAL DVI-D/DVI-D 002 2000MM
37	98.J3403.001	6710V00106A	REMOTE CONTROLLER DXS660 LG
38	27.01018.000	6410VWH015A	CORD H05VV-F 13A250V 1830MM U
39	27.01418.041	6410VWH015L	CORD H05VV3G 16A 250V S-AFRI
40	27.01818.000	6410VWH015B	CORD SVT#18*3C 10A125V 1830US
41	27.82718.281	6410VWH015C	CORD H05VV-F 10A250V EUR BLK
42	50.74405.501	6851V00021M	CABLE AUD PC99PT284C/PT577C B
43	50.J2401.001	6851V00021U	CABLE D-SUB/RCA 1800MM/SL705X
44	50.J2403.501	6851V00021H	SIGNAL/C 15/15P (-9) 2500MM

6. Block Diagram

1. JT51

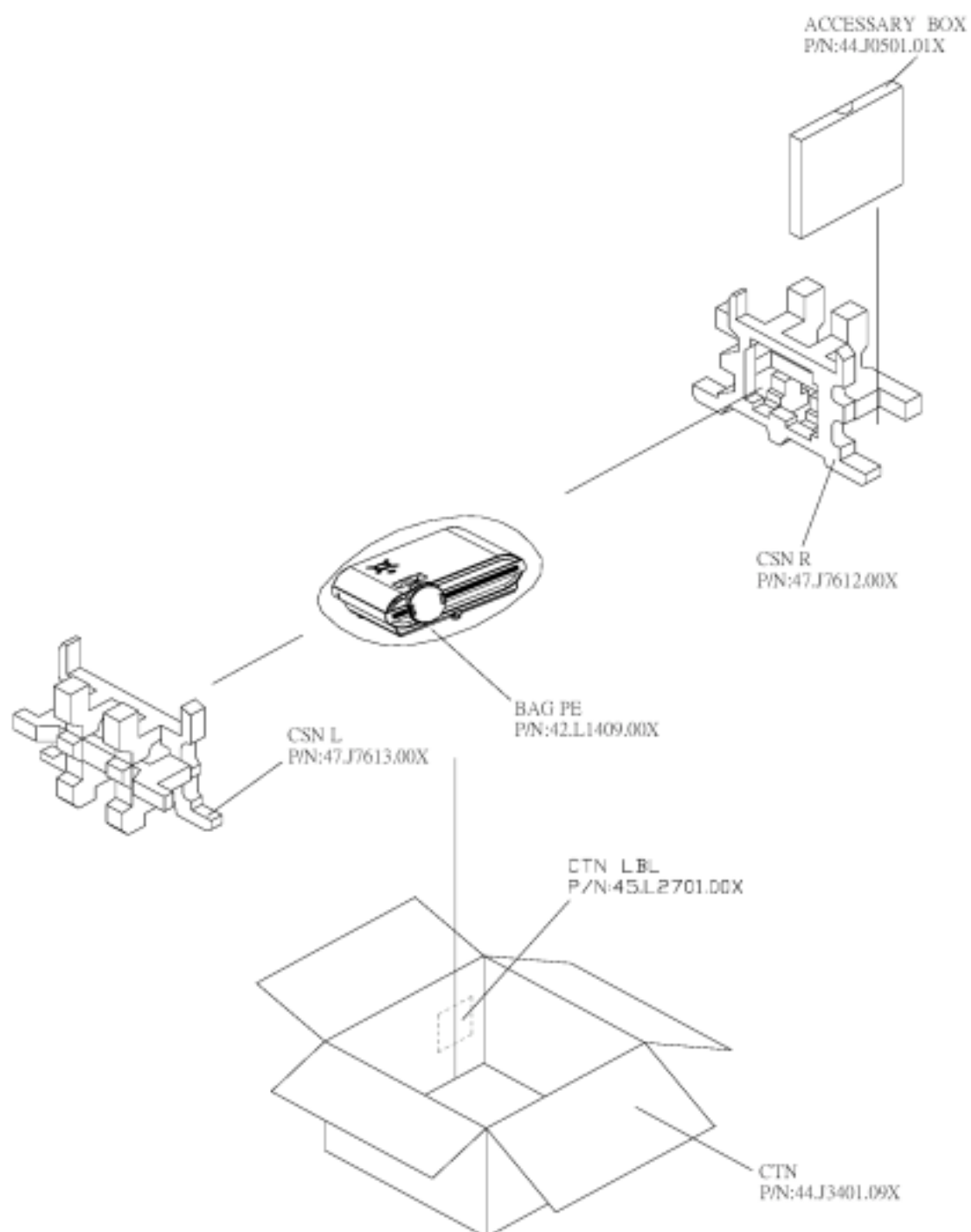


2. JT50/52

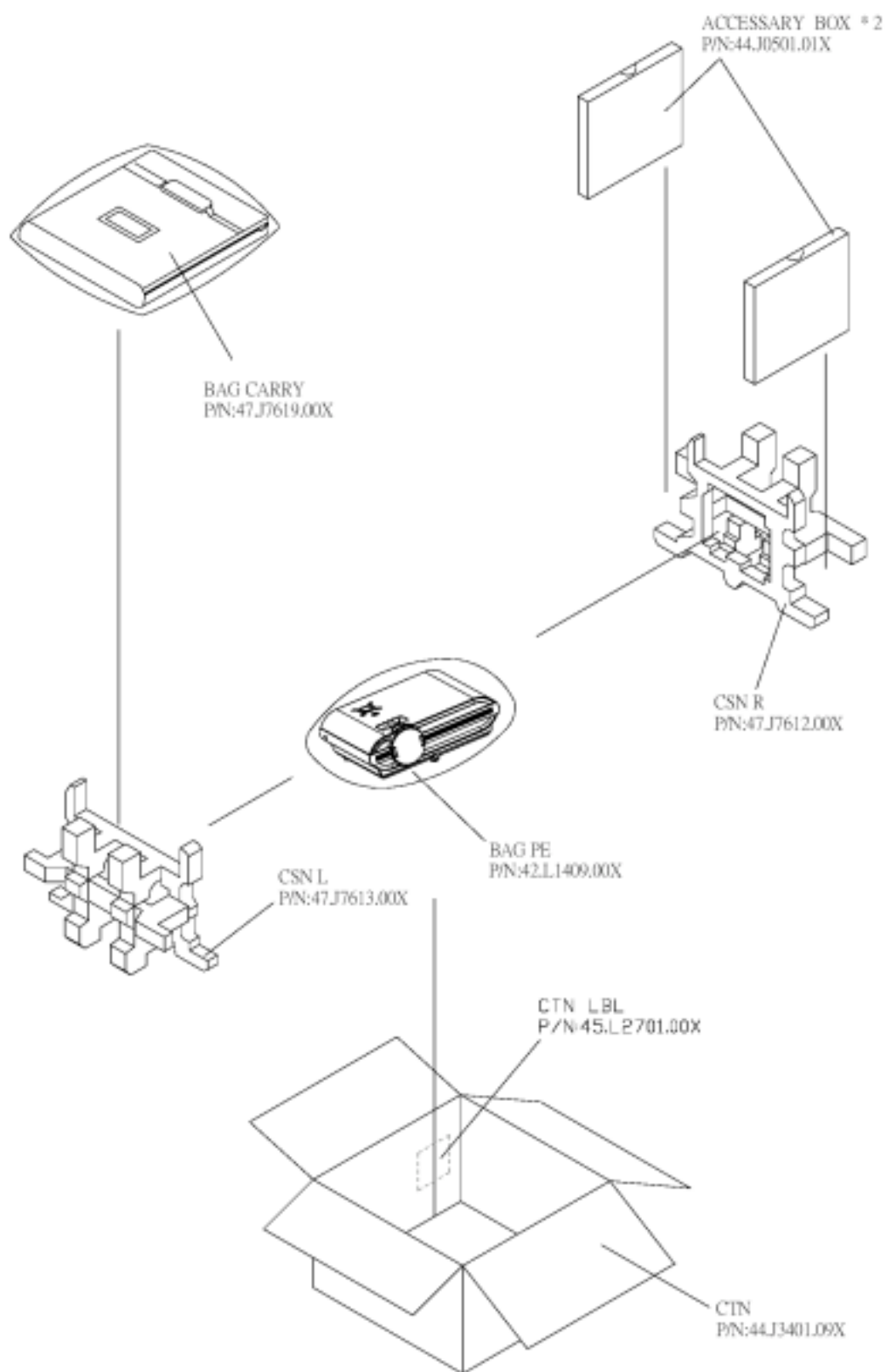


7. Packaging Description

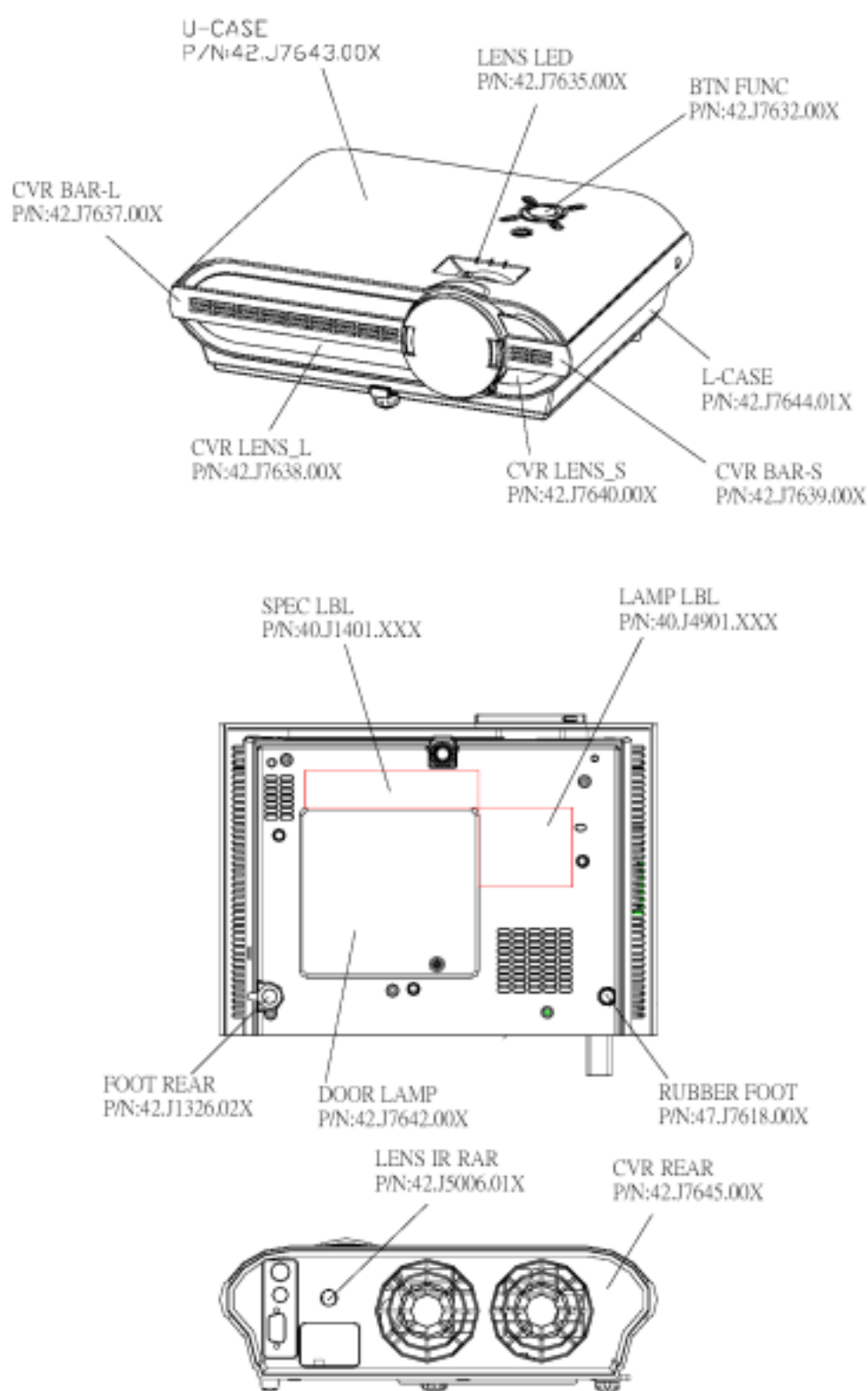
1. JT51



2. JT50/52



8. Appearance Description



9. Alignment Procedure

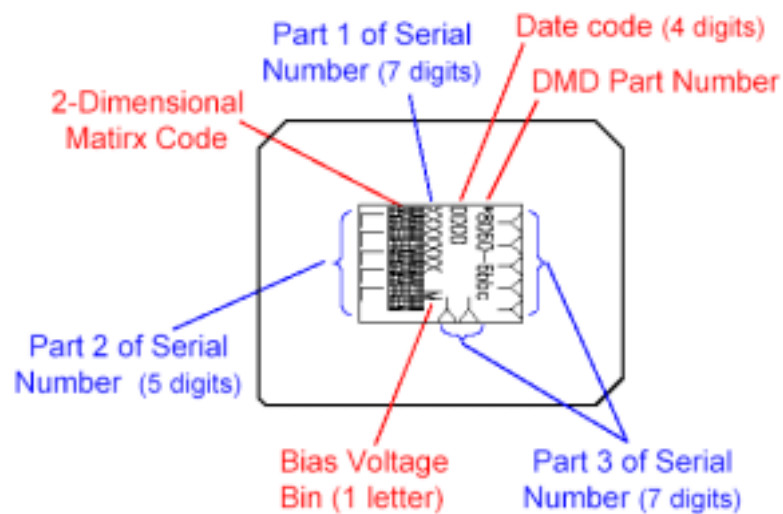
JT51

1. DMD Bias Voltage Alignment

Equipment: None

Procedure:

Watch DMD “Bias Voltage Bin” Label (Example: 8060-7bbc DDDD XXXXXXXX M)



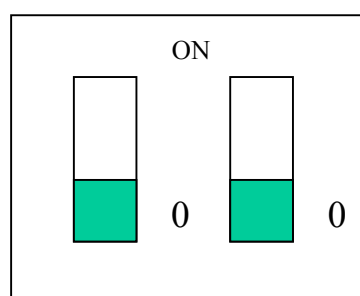
Switch the DIP switch (SW2) on Main board according to the red character on the DMD chip

3.00: E

01: **D**

10: **C**

11: **B**



2. Color Wheel Delay Alignment

Equipment:

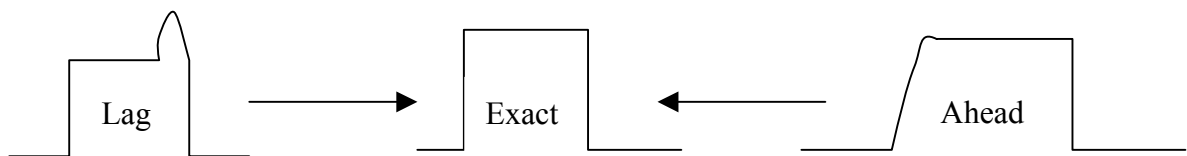
Battery Biased Silicon PIN Detector

Oscilloscope

Probe

Procedure:

1. Probe impedance matches 50 ohm
2. Open Factory OSD, and select color wheel delay item
3. Leave the image pure red (DMD red curtain)
4. Put the detector on the screen that red image was projected.
5. Watch the oscilloscope and notice the square waveform
6. Use the “→” and “←” key to increment or decrement the color wheel delay value
7. No matter the waveform is square or not, let the waveform was lagged first



8. Then increment or decrement the value to let the waveform to be square
9. Do not adjust too much, let the signal get ahead, if it happens, go back to step 7 and do it again.
10. Change the input to pure blue and repeat the above procedures again.

3. PC Color Alignment Procedure

Equipment:

Pattern generator

Procedure:

1. Connect power, D-sub, into projector.
2. Change pattern generator to pattern 43 5-DISC.
3. Light on projector90
4. Enter factory mode.
5. Choose ADC Brightness item to Press.
6. Choose ADC Contrast item to Press.
7. Change pattern generator to pattern 32 gray bar.
8. See if any gray level was abnormal, if the abnormality happened, went back to step 4 and then redid it again.
9. Quit factory mode, after above adjustments finished.

4. HDTV Color Adjustment Procedure

Equipment:

Pattern generator (VG-828)

Lux meter (CL-100)

Procedure:

Offset adjustment:

1. Black coordinate spec:

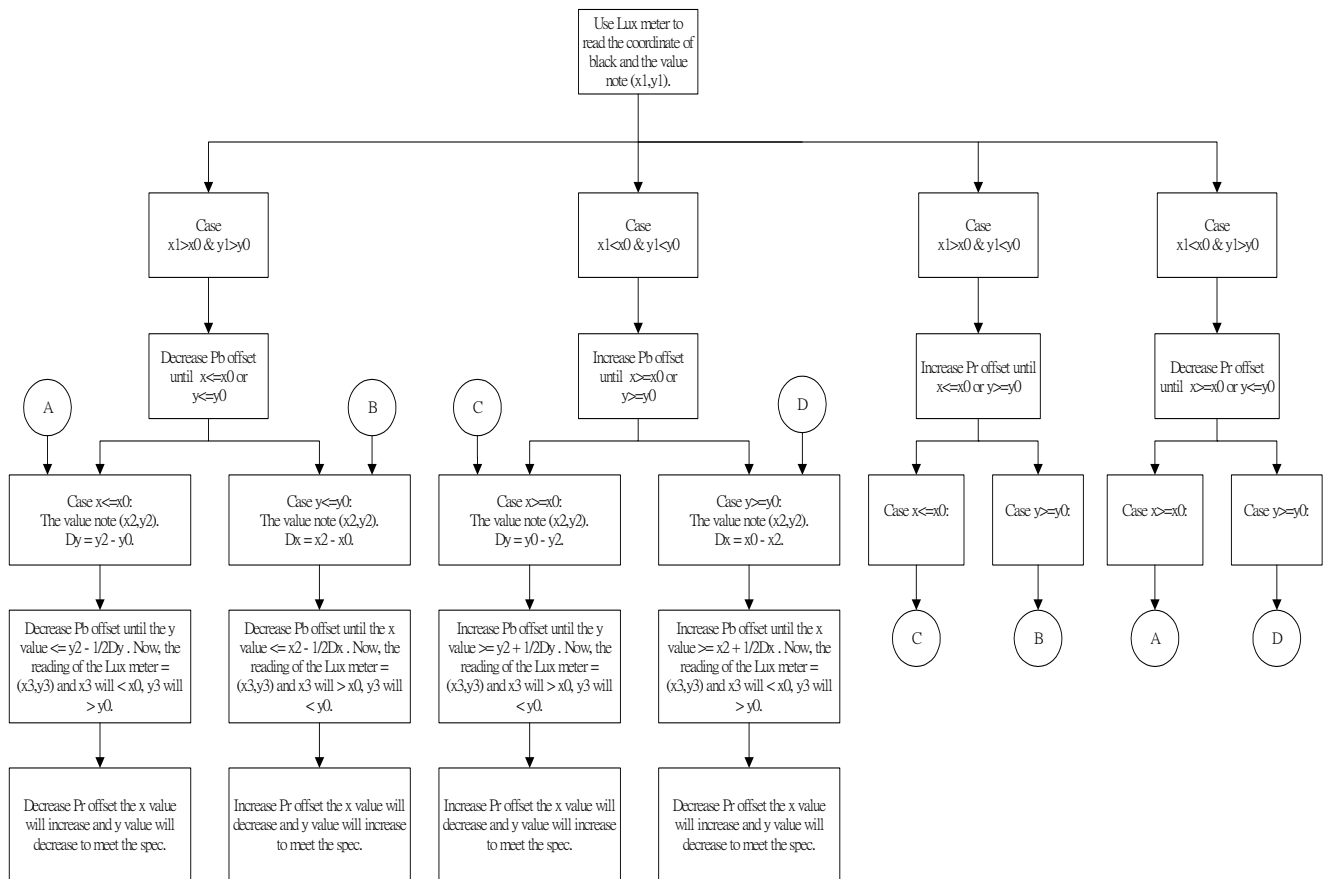
	Osram lamp	Oshio lamp
x0	0.281 ± 0.01	0.313 ± 0.01
y0	0.311 ± 0.01	0.329 ± 0.01

2. The variance of color coordinate via Pb offset and Pr offset:

	x	y
Pb offset ↓	x ↓	y ↓
Pb offset ↑	x ↑	y ↑
Pr offset ↓	x ↑	y ↓
Pr offset ↑	x ↓	y ↑

If we line the x and y, then the Pb offset is the shift action and the Pr offset is the rotational action.

1. Connect power, YPbPr Video into projector.
2. Change Timing and pattern of pattern generator :
3. Timing : 480P(H:31.54 KHz,V:60.08 Hz)
4. pattern : black
5. Light on projector
6. Set user OSD values to default.
7. Enter factory mode.
8. Set Factory values to default.
9. Follow the PbPr offset adjustment flow chart:



JT50/52

1. DMD Bias Voltage Alignment

Equipment:

-None

Procedure:

11. Watch DMD chip Label (Example: 9477000 0234**B**)

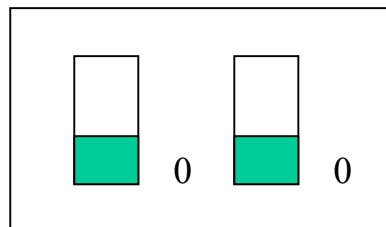
12. Switch the DIP switch on DMD board according to the red character on the DMD chip

3.00: **B**

01: **C**

10: **D**

11: **E**



2. Color Wheel Delay Alignment

Equipment:

- Battery Biased Silicon PIN Detector
- Oscilloscope
- Probe

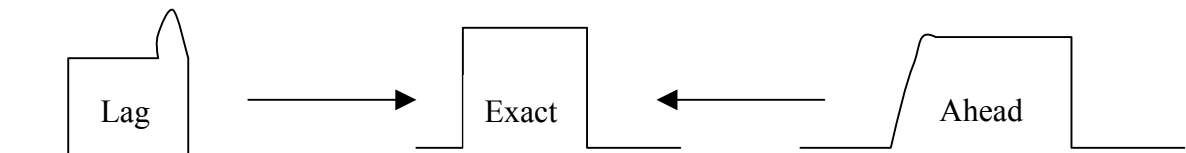
OSD Default value:

Item	Value	Item	Value
DLP Brightness	32	CW Delay	Adjustable
DLP Contrast	32		
White Peak	10		

The default values let optical engine to get maximum contrast and brightness.

Procedure:

1. Probe impedance matches 50 ohm
2. Open Factory OSD, and select color wheel delay item
3. Leave the image pure red (DMD red curtain)
4. Put the detector on the screen that red image was projected.
5. Watch the oscilloscope and notice the square waveform
6. Use the “→” and “←” key to increment or decrement the color wheel delay value
7. No matter the waveform is square or not, let the waveform was lagged first



8. Then increment or decrement the value to let the waveform to be square
9. Do not adjust too much, let the signal get ahead, if it happens, go back to step 7 and do it again.
10. Change the input to pure blue and repeat the above procedures again.
11. Change the input to pure green and repeat the above procedures again.

3. Formatter board check procedure

Equipment:

- Pattern generator

Procedure:

1. Connect power, D-sub, into projector.
2. Light on projector.
3. Testing below patterns and resolution is [1024*768@60Hz](#) (XGA); [800*600@60Hz](#) (SVGA)
 - (1) General-1 pattern. (Pattern 1)
 - (2) 32 grays pattern. (Pattern 48)
 - (3) White pattern. (Pattern 41)
 - (4) SMPTE pattern. (Pattern 5)
4. The formatter board would be note fail if above three image-quality is not good.
5. Test the connection between formatter board to keypad board and IR board.
6. The formatter board would be note fail if there are some wires is broken in formatter board.

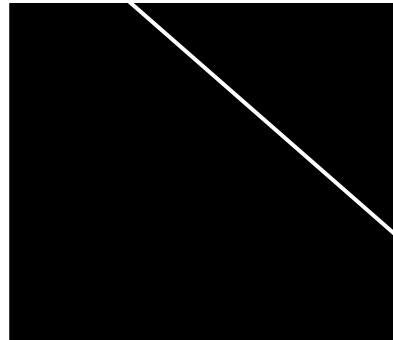
4. DMD Panel Alignment

Equipment:

- Pattern Generator

Procedure:

1. Connect power, Video signal into projector.
2. Light on projector
3. Change pattern generator to full white pattern.
4. Watch the image if any pixel lost
5. Change pattern to full black.
6. Watch the image if any pixel lost
7. Change pattern from full black to full white.
8. Watch the image if any pixel can not return
9. Change pattern from full black to full white.
10. Watch the image if any pixel can not return
11. If above 8 step has some pixel lost or can not return, it's DMD chip has pixel defect
12. Change to the Slid Line pattern
13. Watch the image if any pixel lost
14. If above step has some pixel lost, it's conductive rubber has defect or assembly loosed.



5. Optical Engine Assembly Procedure

Note:

Every operator must check the dust/chip on every optical component before assembly.

No	Stop	Check	Action	Review	Equipment
1	Assy Hsg CW	Chk Timing Tape of Color Wheel	Assemble Color Wheel	Rotate CW	Screw Driver(M3) and Jig fixture for Color Wheel
			Assemble CW_Sensor		Screw Driver(M2) for CW/Sensor
			Assemble UV-IR on PLT CW	Direction of UV-IR	
			Assemble PLT CW		Screw Driver(M3)
			Tape CW FPC and Sensor FPC together		

2	Assy Fold Mirror	Chk Fold Mirror	Assemble Fold Mirror with 3 clippers	Push Fold Mirror into Datum planes	
3	Assy HSG DMD	Chk III Sph. Lens	Assemble III Sph. Lens		
			Assemble Spacer		
		Chk III_Asph. Lens	Assemble III_Asph. Lens		
			Assemble Screw Ring		Screw Driver for Screw Ring Asp
			Assemble BKT Light Pipe on Light Pipe		UV illuminated system and UV glue
			Assemble two Screws for Light Pipe Alignment		
			Assemble Light Pipe w/BKT and Clip		Screw Driver(M2) for Clip Light Pipe
		Chk Concave Mirror	Assemble Concave Mirror		Instant Glue 460+715
			Assemble Assy Fold Mirror		Screw Driver (M3)
			Assemble DMD/DMD FPC	DMD contact	Screw Driver(M4) for DMD
			Assemble Club 9		Screw Driver(M2) for club 9
			Assemble Projection Lens	PL contact	Screw Driver(M3) for PL
4	Assy HSG DMD and HSG CW into Lower case	HSG DMD, HSG CW Rotate CW	Assemble HSG DMD		Screw Driver for HSG_DMD
			Assemble HSG CW		
			Assemble CVR_DMD_HSG		Screw Driver for CVR_DMD_HSG
5	Alignment and CW adjustment	Chk CW rotation	Align Light Pipe and Glue on it		Light Pipe Alignment Fixture Instant glue

		Remove ENG_CVR	Adjust “Club 9” position until BB within spec Glue to fix the “Club 9”		“Club 9” adjustment fixture and glue.
			C/W delay adjust and Engine Test		Sensor and Oscilloscope

Final Check

Step	Screen	Check Items	Acceptance Criteria	Equipment
1.Brightness	100% W Pattern	ANSI Lumens	As per C201 item 1.1	
		Uniformity	As per C201 item 1.2	
2.Contrast Ratio	Checker Board	ANSI C/R	As per C201 item 1.3	
3.Color	R Pattern	Chromaticity Coordinate x, y	As per C201 item 1.5.2	
	G Pattern	Chromaticity Coordinate x, y	As per C201 item 1.5.3	
	B Pattern	Chromaticity Coordinate x, y	As per C201 item 1.5.4	
	100% W Pattern	Chromaticity Coordinate x, y	As per C201 item 1.5.1	
		Uniformity	As per C201 item 1.5.1	
4.DMD	Blue 180 Pattern	Dark Blemish	≤ 6	
		Dark pixel	≤ 4	
	Gray 30 Pattern	Bright Blemish	≤ 6	
		Bright pixel	$= 0$	

7. TV Color Alignment Procedure

(A) Composite Video & S-Video

Equipment:

- Pattern generator (VG-828)
- Lux meter (CL-100)

OSD Default value:

Item	Value	Item	Value
Brightness	0	Brightness Bias	Adjustable
Contrast	0	Contrast Bias	Adjustable
Sharpness	4	Saturation	Adjustable
Hue	0		
CM-Red-CF1/2	128/128		
CM-Green-CF1/2	128/128		
CM-Blue-CF1/2	128,128		
Red Gain	128		
Green Gain	128		
Blue Gain	128		
White Peak	2		
Gamma Table	Linear		

Procedure:

I. Gray Level:

1. Connect power, Composite video or S-Video, into projector.
2. Change Timing and pattern of pattern generator:
3. Timing: NTSC (H: 15.73 KHz, V: 29.96 Hz)
4. Pattern: gray 32 (or gray16 only for over-scan)
5. Light on projector
6. Set user OSD values to default.
7. Enter factory mode.
8. Set Factory values to default.
9. Adjust the Brightness and Contrast to let the black level to just distinguish, and the light output of white level to just max.
10. Check the 32 levels of gray. All steps must appear,

II. Saturation Level:

1. Change Timing and pattern of pattern generator:
Timing: NTSC (H: 15.73 KHz, V: 29.96 Hz)
Pattern: 100% blue
2. Adjust saturation and use lux meter to measure to let the light output just max.

III. Gamma Curve:

1. Change Timing and pattern of pattern generator:

Timing: NTSC (H: 15.73 KHz, V: 29.96 Hz)

Pattern: 100% blue

2. Adjust Gamma Index and Red/Green/Blue Gamma to fit mars video gamma curve.

(B) YPbPr Component:

Equipment:

- Pattern generator (VG-828)
- Lux meter (CL-100)

OSD Default value:

Item	Value	Item	Value
Brightness	0	Brightness Bias	Adjustable
Contrast	0	Contrast Bias	Adjustable
Filter	1	Pb offset	Adjustable
CM-Red-CF1/2	128/128	Pr offset	Adjustable
CM-Green-CF1/2	128/128		
CM-Blue-CF1/2	128/128		
Red Gain	128		
Green Gain	128		
Blue Gain	128		
White Peak	2		
Gamma Table	Linear		

Procedure:

I. Offset adjustment:

1. Black coordinate spec:

	Osram lamp	Oshio lamp
X0	0.281±0.01	0.313±0.01
Y0	0.311±0.01	0.329±0.01

2. The variance of color coordinate via Pb offset and Pr offset:

	X	y
Pb offset ↓	x ↓	y ↓
Pb offset ↑	x ↑	y ↑
Pr offset ↓	x ↑	y ↓
Pr offset ↑	x ↓	y ↑

3. If we line the x and y, then the Pb offset is the shift action and the Pr offset is the rotational action.
4. Connect power, YPbPr Video into projector.

5. Change Timing and pattern of pattern generator:

Timing: 480P (H: 31.54 KHz, V: 60.08 Hz)

Pattern: Black

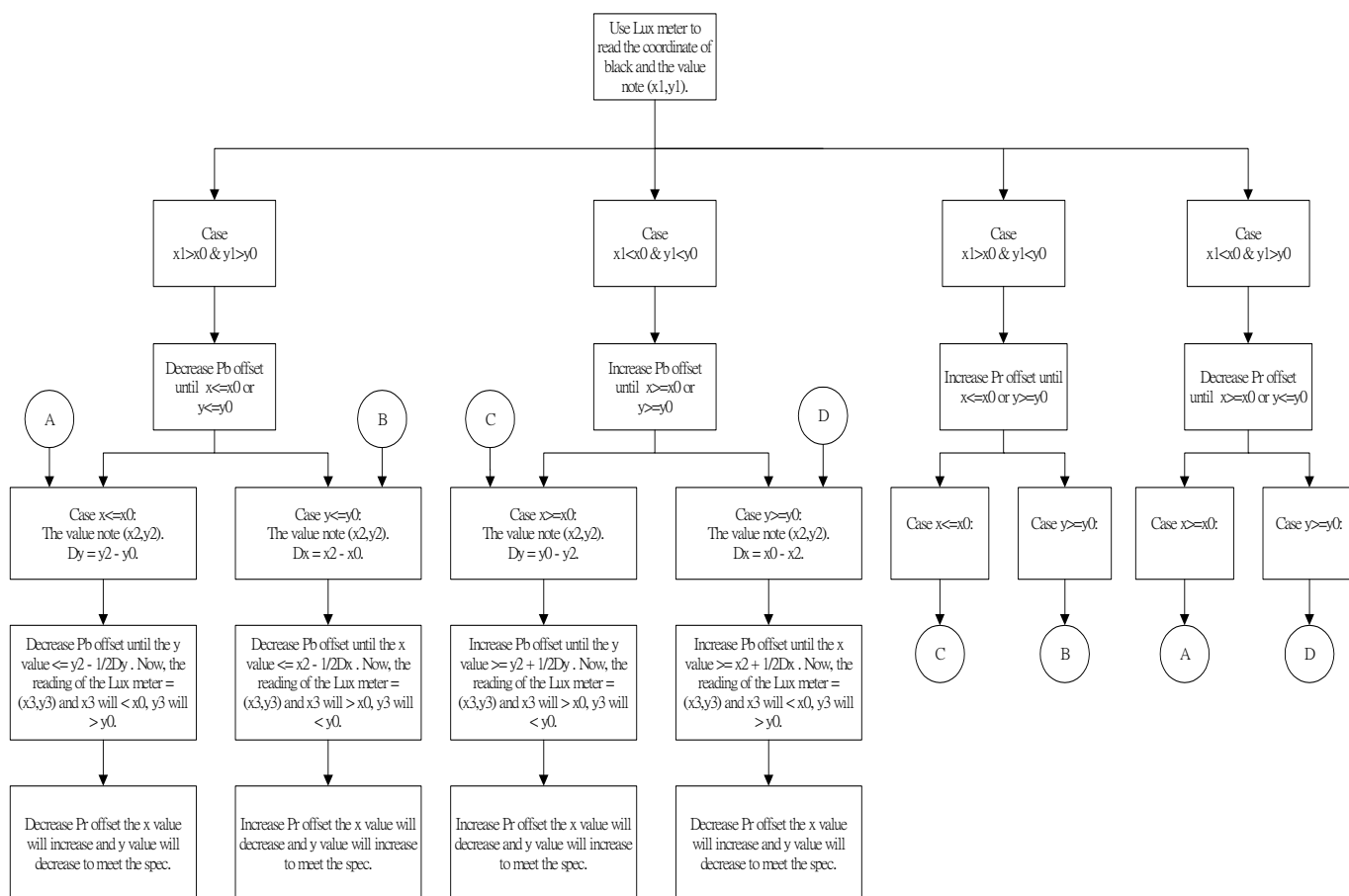
6. Light on projector

7. Set user OSD values to default.

8. Enter factory mode.

9. Set Factory values to default.

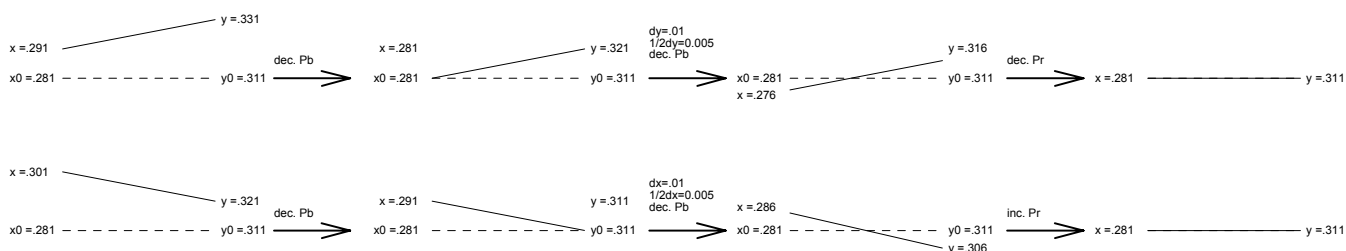
10. Follow the PbPr offset adjustment flow chart:



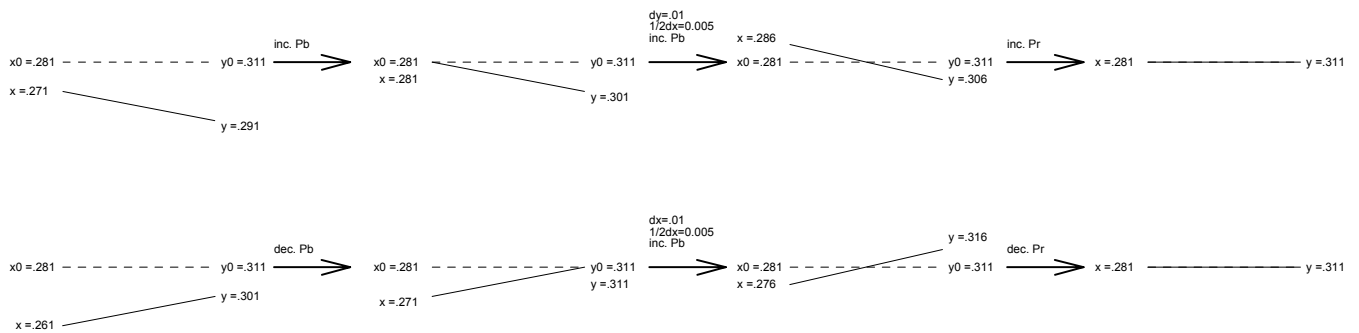
Example:

If use the Osram lamp, then the $x_0 = 0.281$, $y = 0.311$. The dash line of x_0 and y_0 is the target. The solid line of x and y is the measured value.

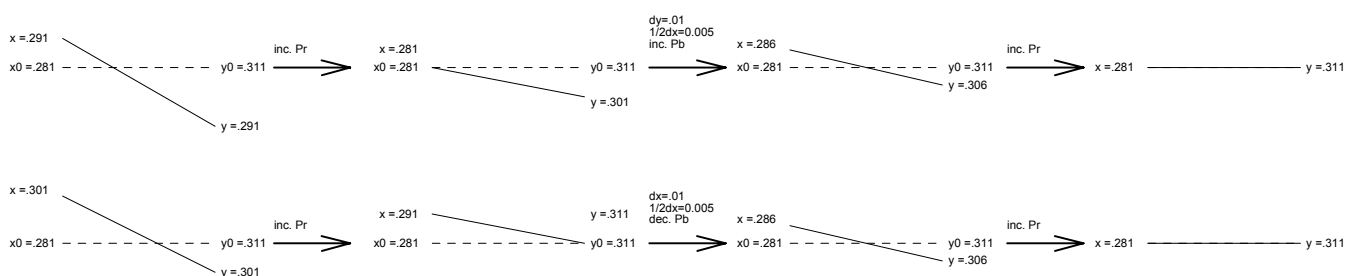
Case $x_1 > x_0$ & $y_1 > y_0$:



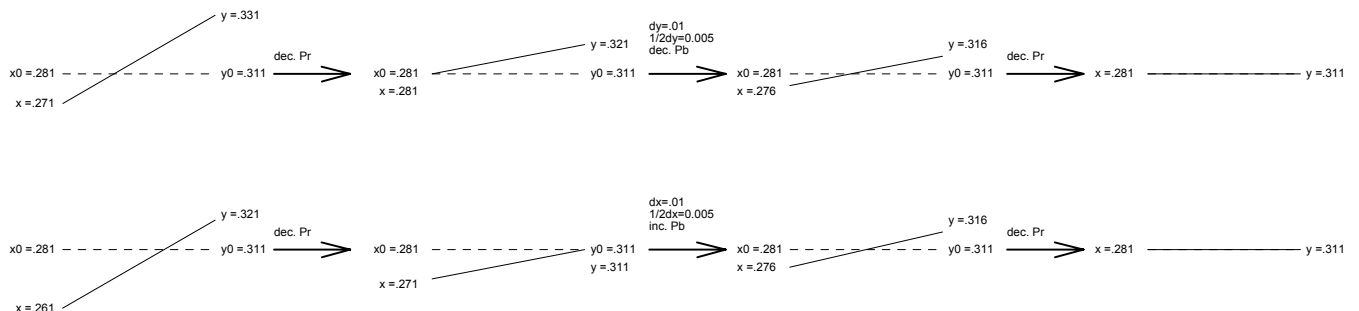
Case $x_1 < x_0$ & $y_1 < y_0$:



Case $x_1 > x_0$ & $y_1 < y_0$:



Case $x_1 < x_0$ & $y_1 > y_0$



II. Gray Level:

1. Change Timing and pattern of pattern generator:

Timing: 480P (H: 31.54 KHz, V: 60.08 Hz)

Pattern: gray 32 (or gray16 only for over-scan)

2. Adjust the Brightness of AD9883 (RGB) to let the black level of the gray 32 to just distinguish. Use Lux meter to measure the white level of the gray 32.

Adjust the contrast value of AD9883 (RGB) to let the light output to just max.

3. Check the 32 levels of gray. All steps must appear,

III. Saturation Level:

1. Change Timing and pattern of pattern generator:

Timing: 480 (H: 31.54 KHz, V: 60.08 Hz)

Pattern: 100% blue

2. Adjust saturation and use lux meter to measure to let the light output just max.

IV. Gamma Curve:

1. Change Timing and pattern of pattern generator:
Timing: NTSC (H: 15.73 KHz, V: 29.96 Hz)
Pattern: 100% blue
2. Adjust Gamma Index and Red/Green/Blue Gamma to fit mars YPbPr gamma curve.

8. PC Color Alignment Procedure

Equipment:

- Pattern generator (Chroma 2250)
- Lux meter (CL-100)

OSD Default value:

Item	Value	Item	Value
Brightness	0	Brightness Bias	Adjustable
Contrast	0	Contrast Bias	Adjustable
Filter	1	Red Gain	Adjustabl
CM-Red-CF1/2	128/128	Green Gain	Adjustabl
CM-Green-CF1/2	128/128	Blue Gain	Adjustabl
CM-Blue-CF1/2	128/128	Color Temp	0,1,2
White Peak	10		
Gamma Table	Linear		

Procedure:

I. Gray Level:

1. Connect power, D-sub (or BNC), into projector.
2. Change Timing and pattern of pattern generator:
Timing: 800x600@60Hz (H: 37.879Khz, V: 60.317Hz)
Pattern: gray 32
3. Light on projector
4. Adjust user OSD values to default.
5. Enter factory mode.
6. Adjust Factory values to default.
7. Adjust the Brightness of AD9883 (RGB) to let the black level of the gray 32 to just distinguish.
8. Use Lux meter to measure the white level of the gray 32. Adjust the contrast value of AD9883 (RGB) to let the light output to just max.
9. Check the 32 levels of gray. All steps must appear,

II. Color Temperature:

1. Change Timing and pattern of pattern generator:

Timing: 800x600@60Hz (H: 37.879Khz,V: 60.317Hz)

Pattern: 80% gray

2. Color temperature spec:

	Warm(0)	Standard(1)	Cool(2)
Color temperature	6500°K	9000°K	11500°K
x	0.313±0.01	0.281±0.01	0.272±0.01
y	0.329±0.01	0.311±0.01	0.283±0.01

3. The variance of color coordinate via R, G, B gains:

	X	Y
R ↓	x ↓	-
G ↓	-	y ↓
B ↓	x ↑	y ↑

4. Adjust the warm color.

5. Open Factory OSD and set the factory default value:

6. User the lux meter and adjust Red Gain, Green Gain, & Blue Gain to met the spec.

7. Store the value to memory.

8. Repeat 5~7 to perform the Standard (2) and Warm (3) color temperature.

6.Final Assembly Alignment Procedure

Unless other specified, all alignments should meet the following conditions:

1. All power on and power off condition should be last for more than 5 minute. i.e. no power on is permitted if UUT(Unit under test) had not been power off and last for more than 5 minute since last power on.
2. Brightness and contrast should be measured only 5 minute or more after lamp is on.
3. UUT should be placed at a distance ranges from 1.5 to 5 meter.
4. Applied timing should be 1024*768 @65Hz (XGA); 800*600@60Hz (SVGA)

Before test, be sure the following configurations are done properly:

1. Turn off light in test chamber.
2. Test chamber condition as per ANSI IT7.215-1992.
3. Connect DSUB cable to Graphics port of UUT.
4. Connect stereo input to stereo input of UUT.
5. Connect RCA terminal to Video input of UUT.
6. Connect S terminal to S-Video input of UUT.
7. Connect AC power cord to UUT.

(A) Video EE Check

Equipment: VG828, DVD Player

Aspect Ratio: 4:3

Channel	Prime Mode	Timing	Pattern	Item	Criteria
Composite Video	*	NTSC (H:15.73KHz, 29.96Hz, I)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct Color Noise Acceptable
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Only Color Noise Acceptable
			PT976 64Gray & Color	Gray & Color Check	64 Step
		PAL (H: 15.63KHz, 25Hz, I)	PT863 Text	EM Character	EM distinguish Color Noise Acceptable
			Movie	Video Essential	
			PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct Color Noise Acceptable
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Only Color Noise Acceptable

Channel	Prime Mode	Timing	Pattern	Item	Criteria
S-Video	*	NTSC (H:15.73KHz, 29.96Hz, I)	PT2	Gray	0-100%
			Master Pattern	H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec

				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
			PT976 64Gray & Color	Gray & Color Check	64 Step
			PT863 Text	EM Character	EM distinguish
			Movie	Video Essential	
		PAL (H:15.63KHz, 25Hz, I)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
YcbCr	*	NTSC (H:15.73KHz, 29.96Hz, I)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
			PT976 64Gray & Color	Gray & Color Check	64 Step
			PT863 Text	EM Character	EM distinguish
			Movie	Video Essential	
		PAL (H: 15.63KHz, 25Hz, I)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable

YPbPr	*	480p (H: 31.54KHz, 60.08Hz, p)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
			PT976 64Gray & Color	Gray & Color Check	64 Step
			PT863 Text	EM Character	EM Clear
			Movie	Video Essential	
		720p (H: 45.00KHz, 60Hz, p)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	2 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
			PT2 Master Pattern	Gray	0-100%
				H&V Res.	4 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Only interlace jitter acceptable

(B) PC EE Check:

Equipment: Chroma 2250, CL-100

Aspect Ratio: 4:3

Channel	Prime Mode	Timing	Pattern	Item	Criteria
DSB	*	1024*768@85Hz (68.677KHz, 84.997Hz)	PT5 SMPTE 3	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
			PT48 32 Gray	Gray Check	32 Step
			PT85 Text	Character	Clear
			PT46 10 Gray	ColorTemp@80% Gray	
				Cool (1)	(0.272,0.283) ±0.02
				Standard (2)	(0.281,0.311) ±0.02
				Warm (3)	(0.313,0.329) ±0.02
			Picture Phone Lady	Picture check	
		640*400@70Hz (31.47KHz, 70.08Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		640*480@60Hz (31.469KHz, 59.94Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec

				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		640*400@85Hz (43.269KHz, 85.008Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		800*600@60Hz (37.879KHz, 60.317Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		800*600@75Hz (46.875KHz, 75Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	1 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		800*600 @85Hz (53.67KHz, 85.06Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	2 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		1024*768@60Hz (48.4KHz, 60Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	2 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable

				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable
		1024*768@75Hz (60.023KHz, 75.029Hz)	PT2 Master Pattern	Gray	0-100%
				H&V Res.	2 Line
				Color	Hue, Sat need correct
				Smear	Not acceptable
				Linearity	As optical spec
				Jitter, Swing, Snack, Ring, Cross-talk	Not Acceptable

(C) Optical Check

Equipment: Chroma 2250, CL-100

Aspect Ratio: 4:3

User OSD setting: (PC), 30 gray

Final Check				
Step	Screen	Check Items	Acceptance Criteria	Equipment
1.Brightness	100% W Pattern	ANSI Lumens	$\geq 450@PC$ mode	
		Uniformity	$\geq 70\%$	
2.Contrast Ratio	Checker Board	ANSI C/R	$\geq 130:1$	
3.Color	R Pattern	Chromaticity Coordinate x, y	$\Delta \leq 0.04$	
	G Pattern	Chromaticity Coordinate x, y	$\Delta \leq 0.04$	
	B Pattern	Chromaticity Coordinate x, y	$\Delta \leq 0.04$	
	100% W Pattern	Chromaticity Coordinate x, y	$\Delta \leq 0.04$	
		Uniformity	$\Delta \leq 0.04$	
	50% W Pattern	Chromaticity Coordinate x, y	$\Delta \leq 0.04$	
		Uniformity	$\Delta \leq 0.04$	
4.DMD	Blue 180 Pattern	Dark Blemish	≤ 6	

		Dark pixel	<=4	
	Gray 30 Pattern	Bright Blemish	<=6	
		Bright pixel	=0	

Inspection			
Step	Check Items	Acceptance Criteria	Equipment
1.Apperance	CHK Appearance	C315	
2.Button	CHK Functionality	Shinning and No Stuck	
3.Front / Rear Foot	CHK Functionality	Adjustable	
4.Zoom / Focus Ring	CHK Functionality	Adjustable	
5.CFM	Measure Air Flow	>= TBD CFM	
6.PC	SMPTE133 Pattern	Jitter	PC
		Geometry	
		Focus/Ring	
	Color Ramp Pattern	Stuck Bit	
		Flashing	
	Phone Lady picture	Tint	
		General Picture Quality	
7.Video (RCA, S-Video)	Static pattern (SMPTE133 Pattern)	Flicker	DVD Player
		Stuck Bit	
	Dynamic movie (Toy Story/ Video Essential)	Tint	
		Noise	
		General Picture Quality	
8.Audio		Input	DVD Player
9.OSD/Remote		As per C201	PC input
10.Hi-Pot		As per C201	High Power Generator

10. How to disassemble the set

1. Lamp Module

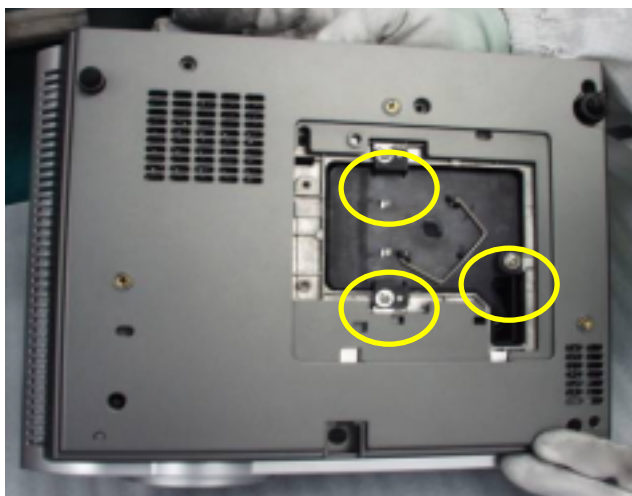
The lamp module is located at bottom of the projector. The lamp module behinds the lamp cover with 1 captive screw. After you replace the lamp module, you should reset the lamp hour counter. The switch interrupts power supply output to the projector if you remove the lamp cover.

WARNING Allow the projector to cool before removing the lamp module. The lamp module becomes very hot when the projector is in use. DO NOT touch any part of the lamp module that is located in the lamp box. Oils from your fingers will cause smudges and uneven heating of lamp surfaces, resulting in decreased image quality and premature lamp failure. If the lamp is ruptured or the lamp module is cracked or damaged, be careful of quartz or glass fragments that could cause personal injury.

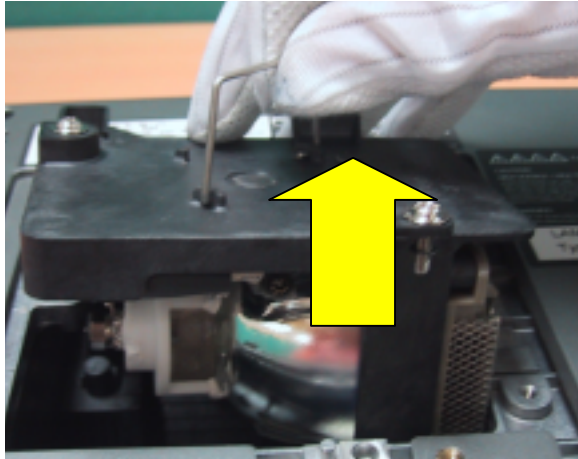
1. Remove one screw of lamp cover which is a spring door.



2. Remove the 3 screws from the lamp module, then you can take out the lamp module.

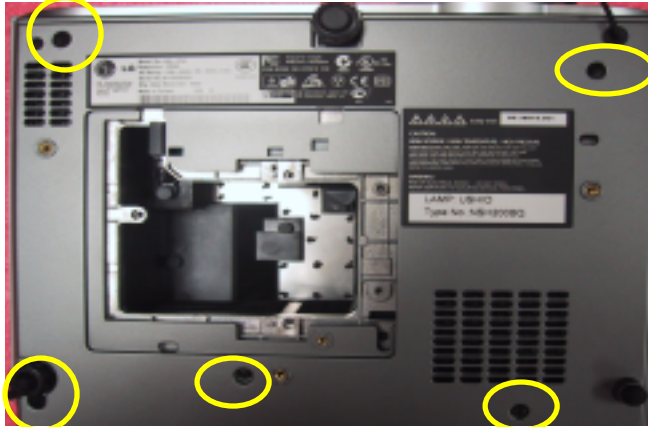


3. Grasp the handle on the lamp module and pull the module out of the lamp box.



2. Covers

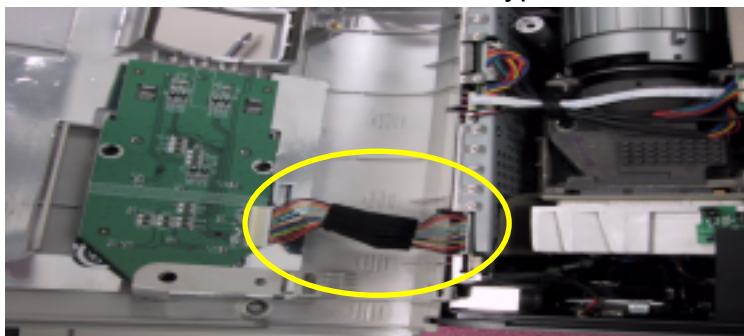
1. Remove 5 screws of lower case first.



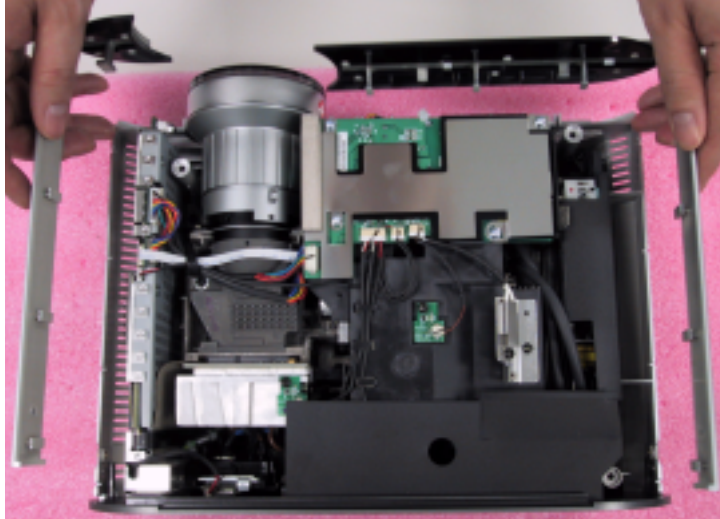
2. Remove 1 screw of each side panel



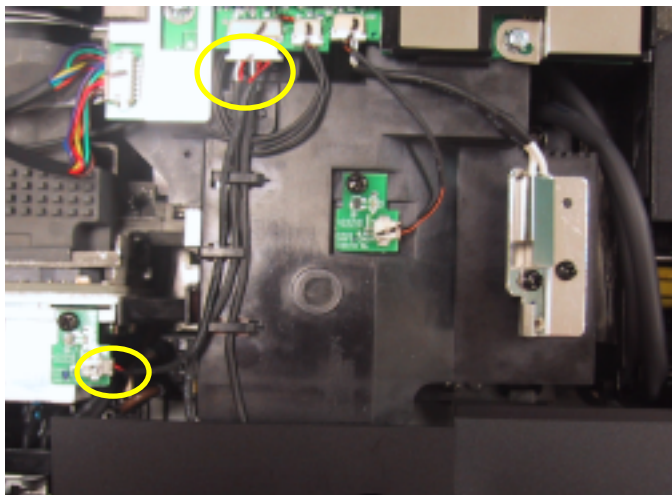
3. Be sure to remove one wire of keypad board, then the upper case can be removed.



4. Then you can remove side panel as well.

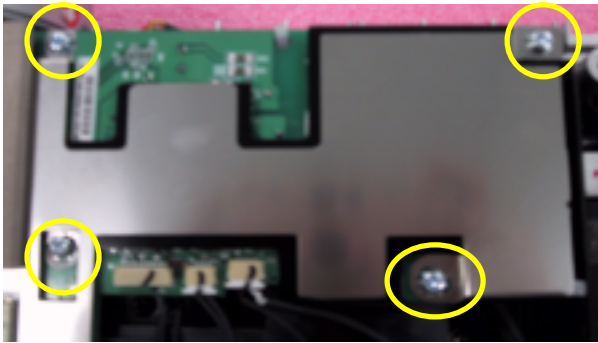


5. Remove 2 jack screws of rear cover, be sure to remove 2 wires as well.
Then you can take out rear cover. The rear cover includes rear fan module.

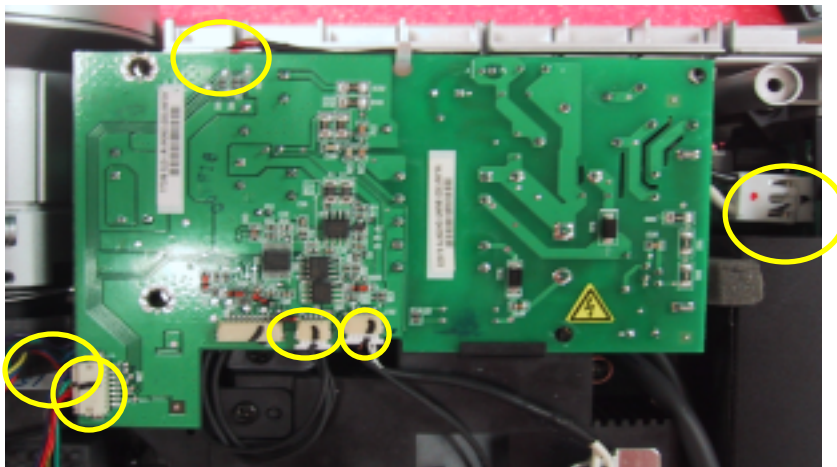


3. Power Module

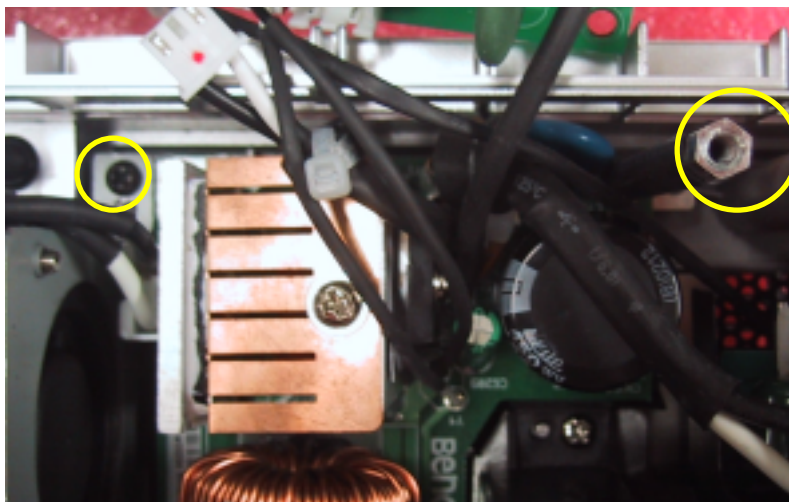
1. Remove 4 screws and then take out top mylar.



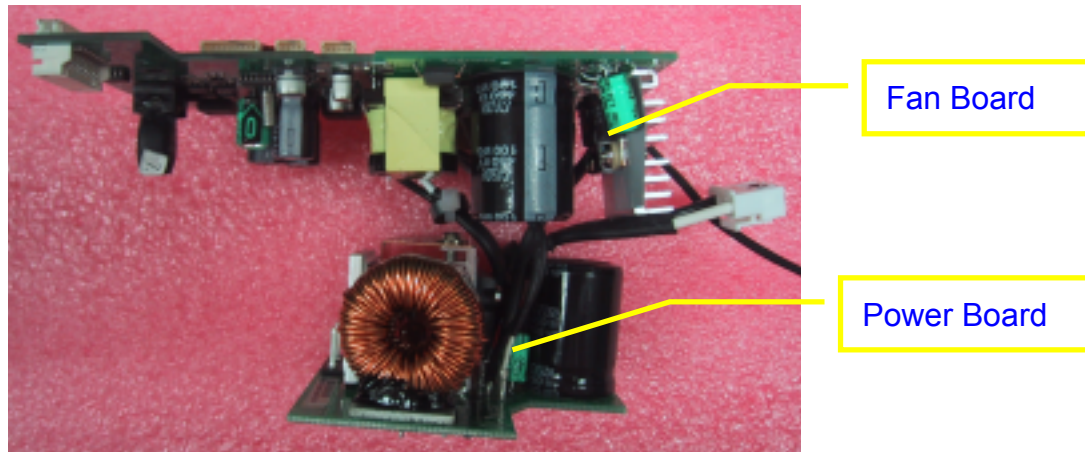
2. Remove 6 wires, then you can take out fan board.



3. Remove one long screw and one short screw, then the whole power module can be removed.

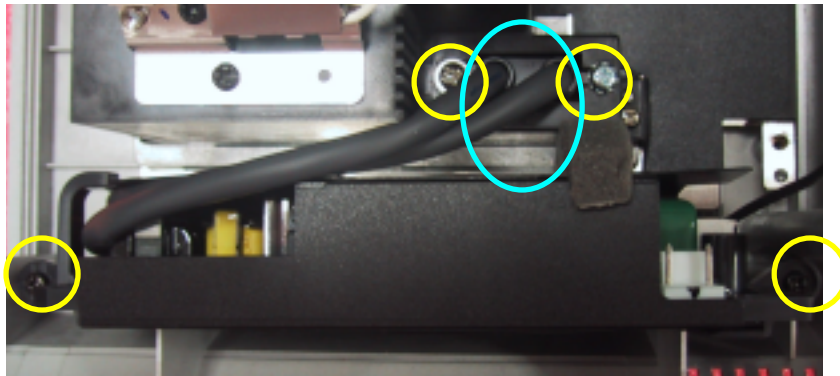


4. Power module includes power board and fan board, they can't be separated



4. Ballast

1. Remove 4 screws (2 black screws and 2 silver screws) and one wire.

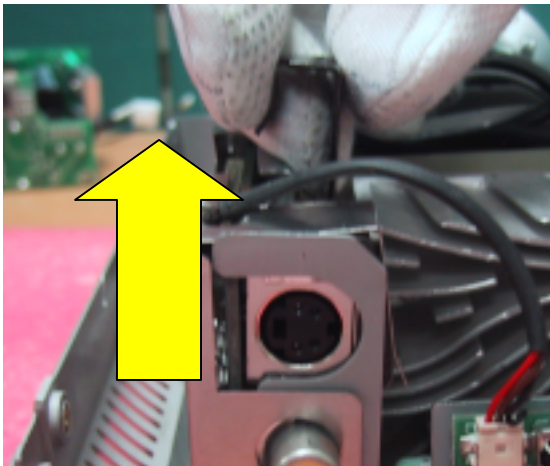
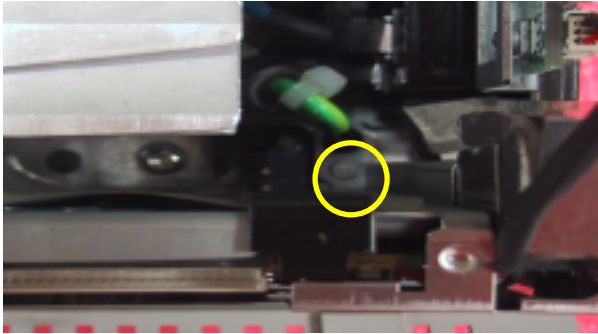


2. Then you can take out ballast as below.

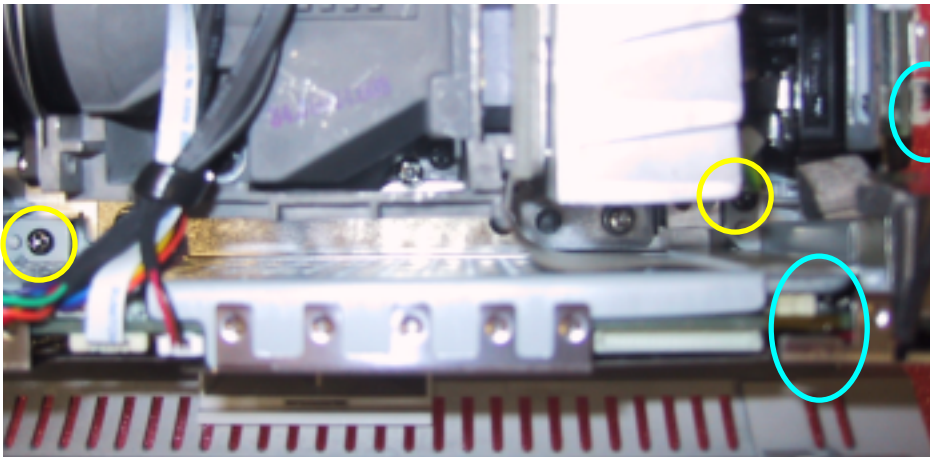


5. Main board

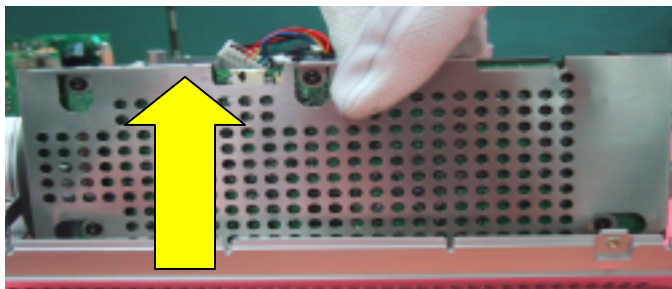
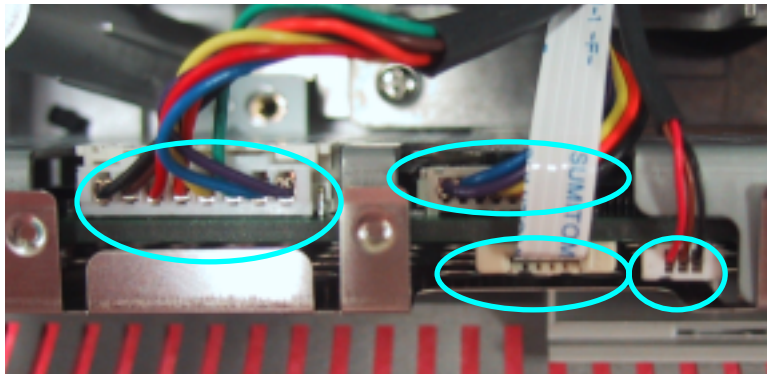
1. Remove one black screw of BKT and then take out it.



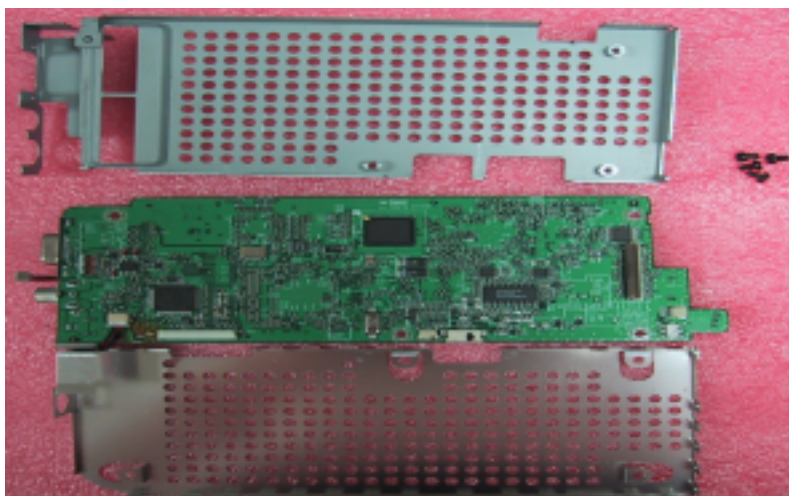
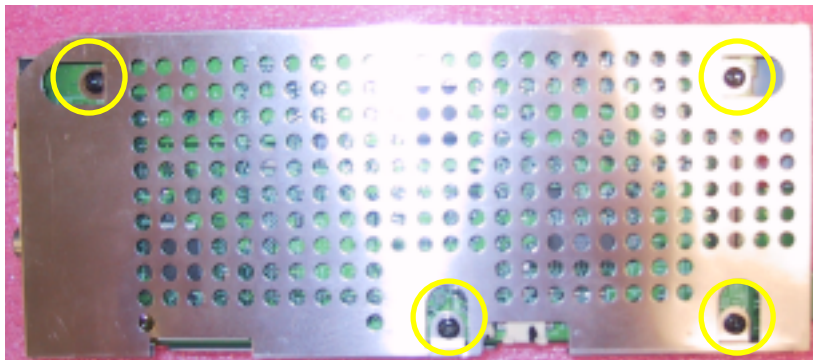
2. Remove 2 black screws and two wires(one is for chip board's connector, the other is for AC cable's wire)



3. Remove 4 wires from main board, then take out main board.

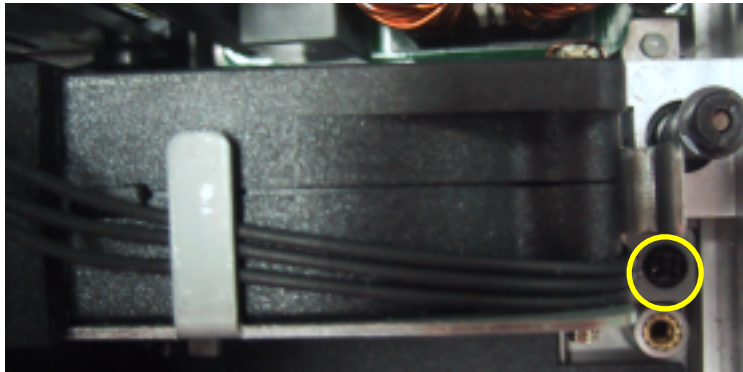


4. Remove 4 screws on the main board module, then you can take out main board.



6. Blower

1. Remove one black screw and then blower can be removed from projector.

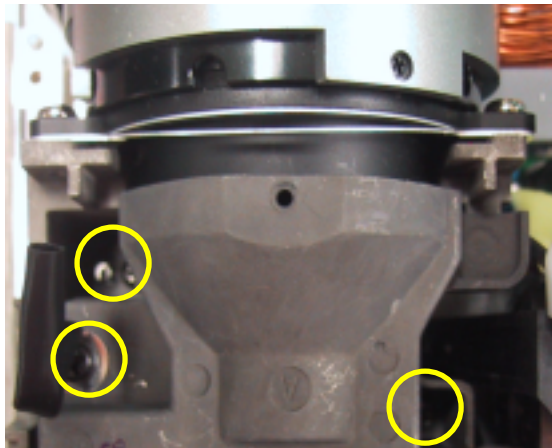


2. Remove 2 screws of blower module and then take out blower.

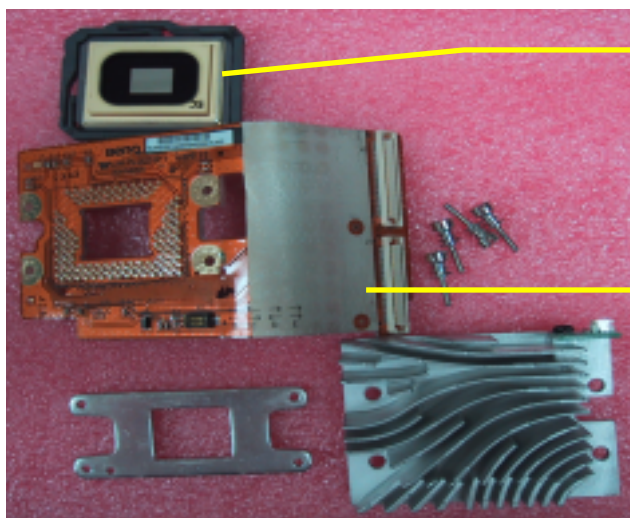
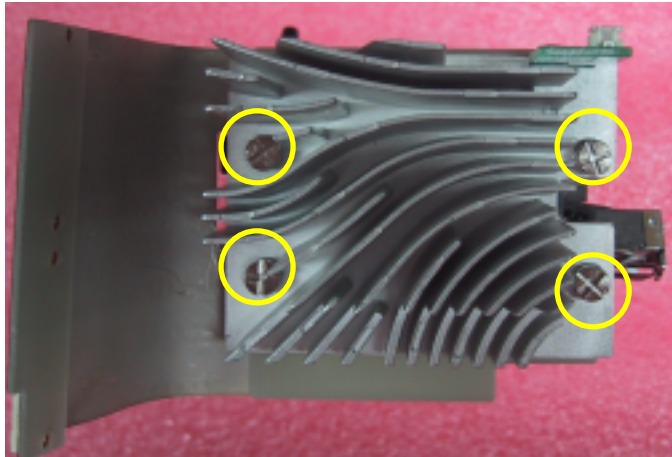


7. Optical engine

1. Remove 3 silver screws and then optical engine can be removed.



2. Remove 4 screws on the heat sink and then can see chip board and DMD chip.



DMD Chip

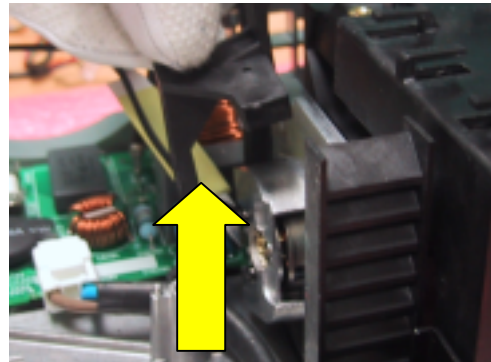
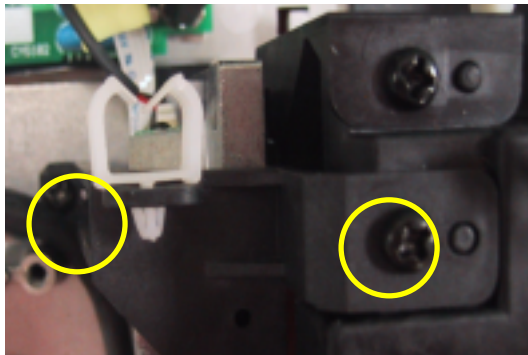
Chip board

3. Remove 4 screws and then lens can be removed.

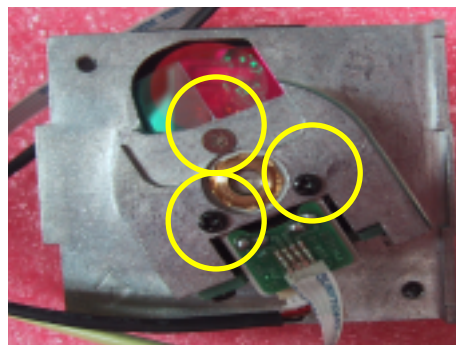


8. Color wheel

1. Remove 2 black screws of color wheel holder.

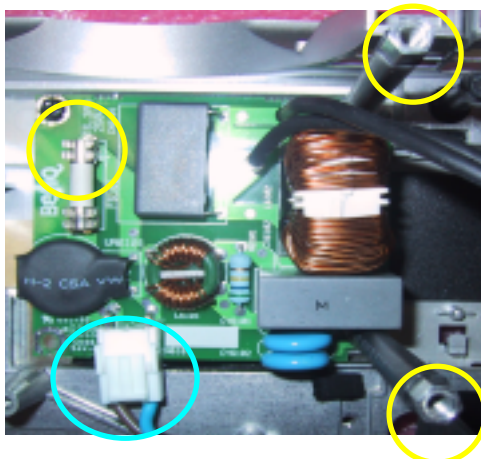


2. Remove 5 screws of color wheel module.



9. EMI board

1. Remove 2 long screws, one black screw and one wire.



11. Frequently Asked Questions

1. No power

- 1) Make sure the power cord is inserted into the AC adapter socket.
- 2) Make sure the power cord is inserted into the power outlet.
- 3) Toggle the power switch to the position "1".
- 4) Wait 90 seconds after the projector is turned off before turning the projector back on.

2. No picture

- 1) Check for the proper input source.
- 2) Ensure all cables are connected properly.
- 3) Adjust the brightness and contrast.
- 4) Remove the lens cap.

3. Trapezoid image on the screen

- 1) Reposition the unit to improve its angle on the screen.
- 2) Use the Keystone correction key on the control panel of the projector or the remote control unit.

4. Poor color

- 1) Select the correct video system.
- 2) Adjust brightness, contrast, or color.

5. Blurred image

- 1) Press Auto on the control panel of the projector or the remote control unit to get better picture quality.
- 2) Adjust the focus.
- 3) Reposition the unit to improve its projection angle.
- 4) Ensure the distance between the unit and screen is within the adjustment range of the lens.

6. Remote control does not work

- 1) Replace the batteries with new ones.
- 2) Make sure there is no obstacle between the remote control and the projector.
- 3) Stand within 6 meters(19.5 feet) of the projector.
- 4) Make sure nothing is blocking the front and rear receivers.

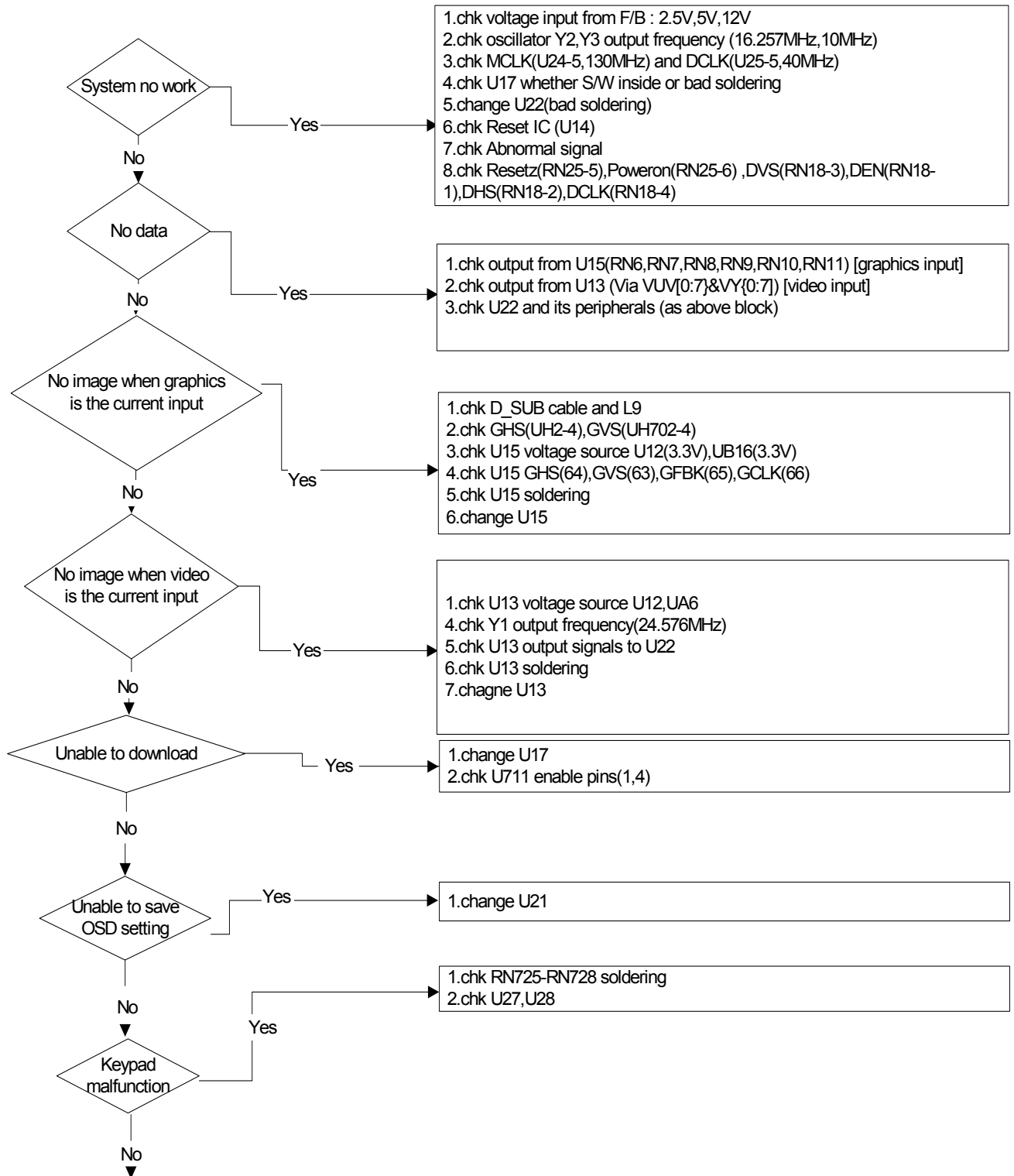
12. Trouble Shooting Guide

JT51

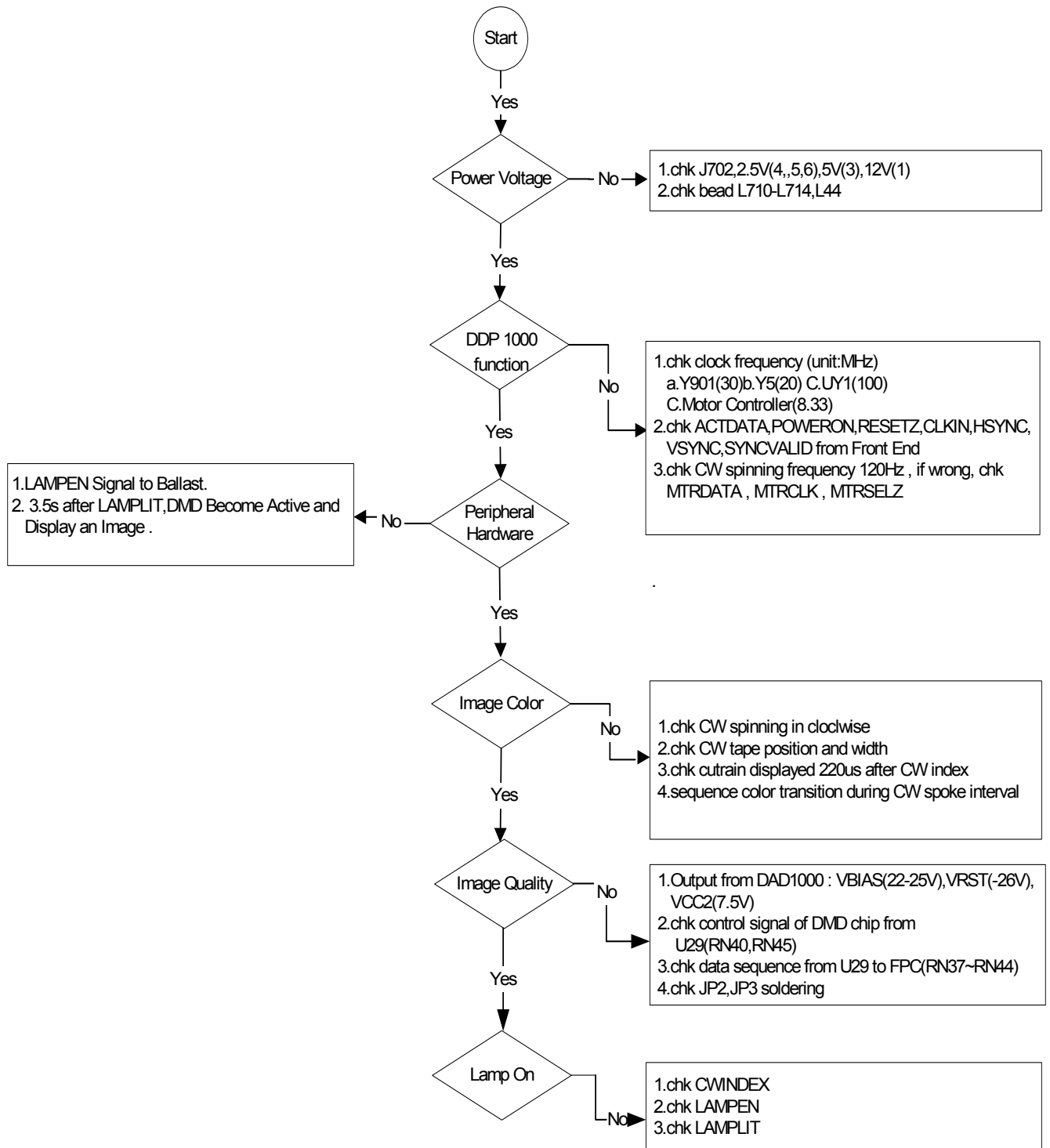
1. Optical Engine

No.	Item	Trouble Shooting Guide
1	Brightness	1. Change lamp 2. Check overfill size: If overfill too large, re-install SL and AL to ensure correct position
2	Uniformity	1. If Uniformity is within 3% of spec: Change lamp 2. Check FM installation 3. Check overfill size: If overfill too small, re-install SL and AL to ensure correct position
3	FOFO Contrast	1. Clean DMD 2. Clean PL
4	ANSI Contrast	1. Clean PL 2. Clean DMD 3. Change PL
5	Color	Check CW 50% point. Replace CW if necessary
6	Color Uniformity	Change CM
7	Blue Edge	1. Readjust LP: Make sure the LP end is touching with DMD_HSG Datum 2. Check LP: If LP is crushed, replace with new LP
8	Blue/Purple Border	1. Re-install SL and AL to ensure correct position 2. Check FM installation
9	Focus	1. Change Projection Lens 2. Put shim metal between upper side of DMD and DMD datum
10	Dust	Clean DMD
11	Horizontal/Vertical Strips	1. Check connector between FPC and M/B 2. Re-install DMD with FPC 3. Check if any pin of C-Spring is missing or damaged 4. Change new FPC/C-Spring 5. Change new DMD
12	Pixel Fail	Change new DMD

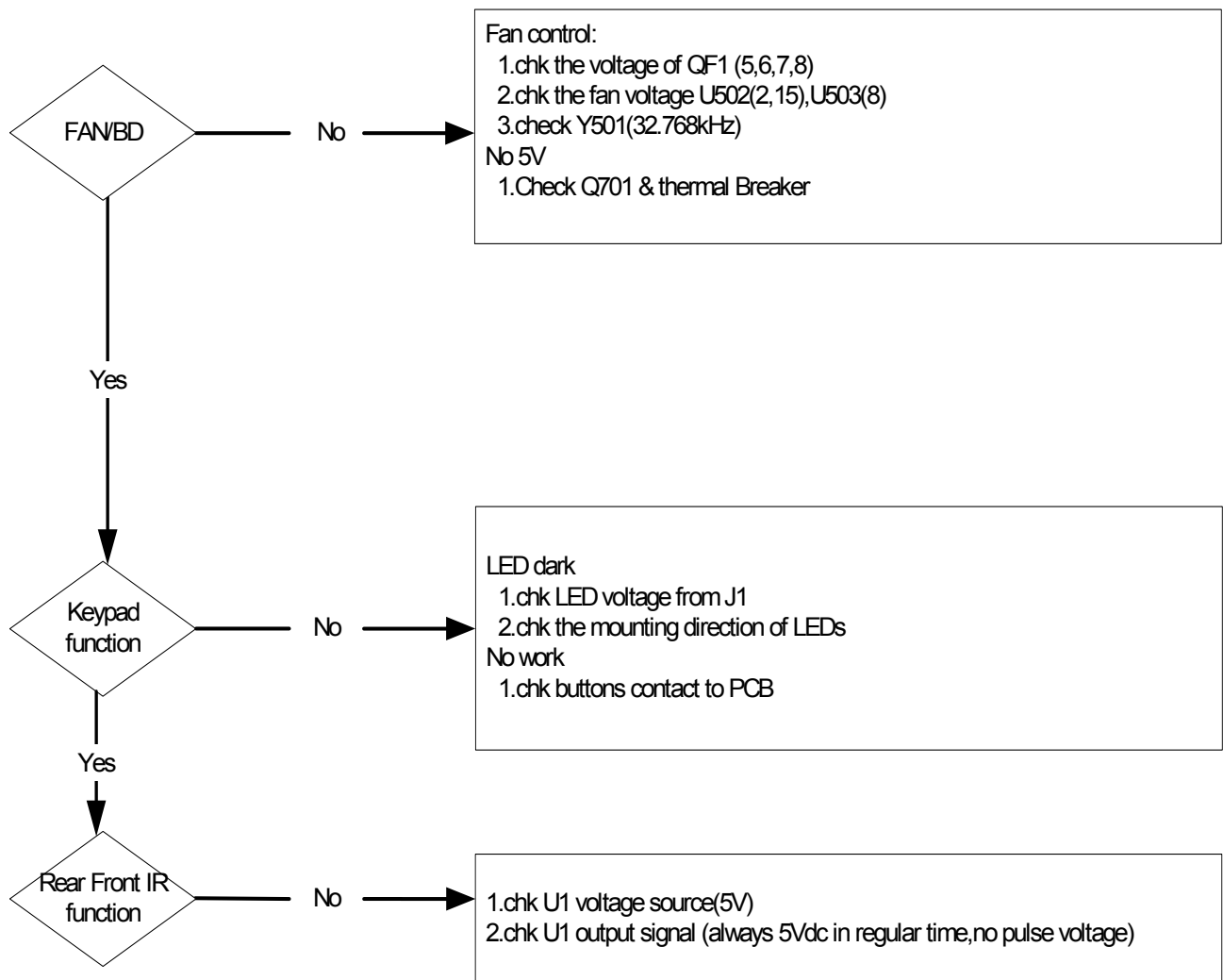
2. Main board



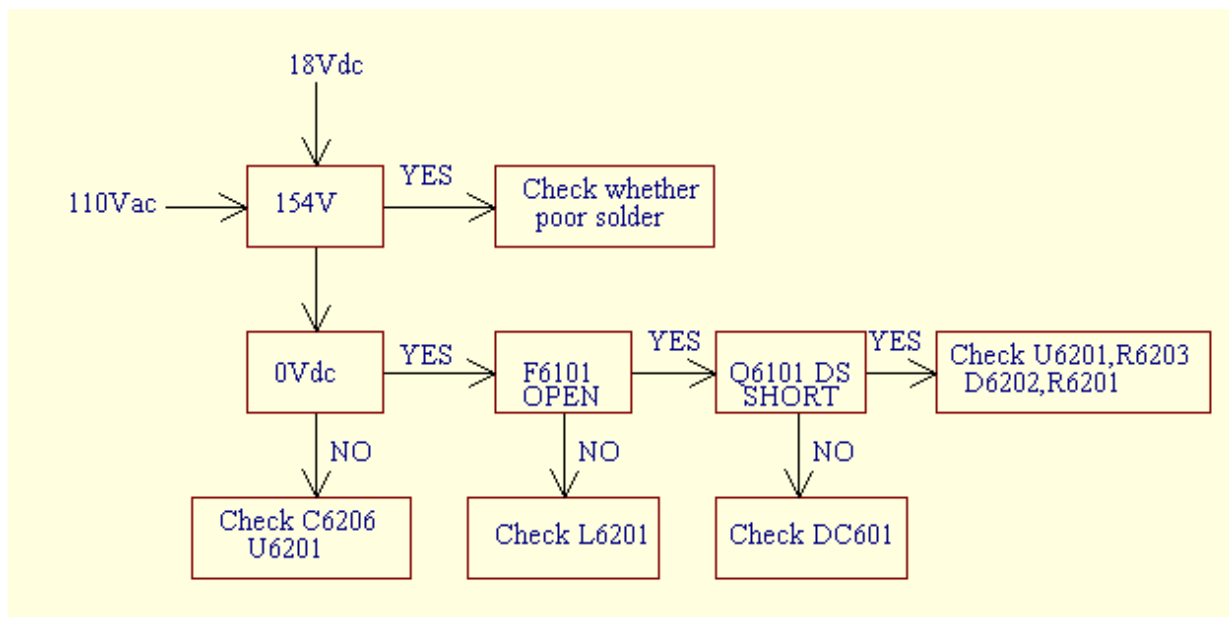
3. DMD Driver



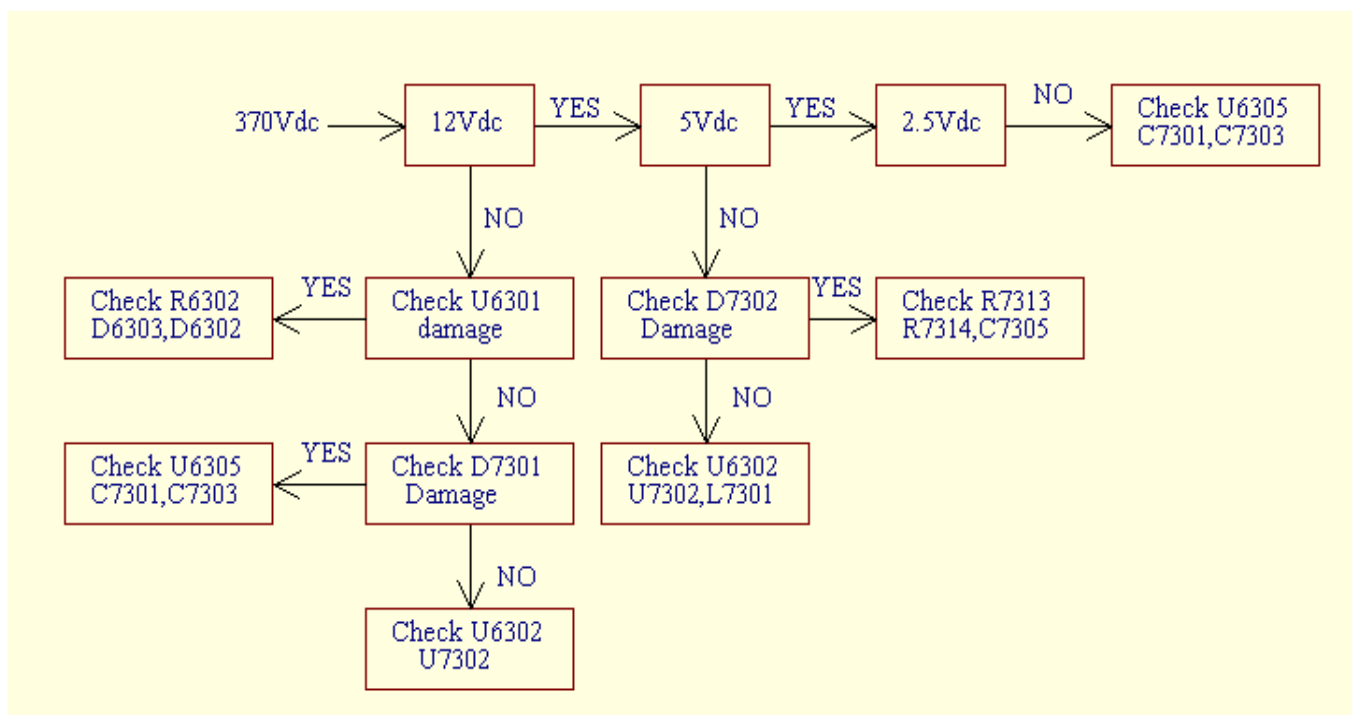
4. Smaller boards



5. PFC BOARD

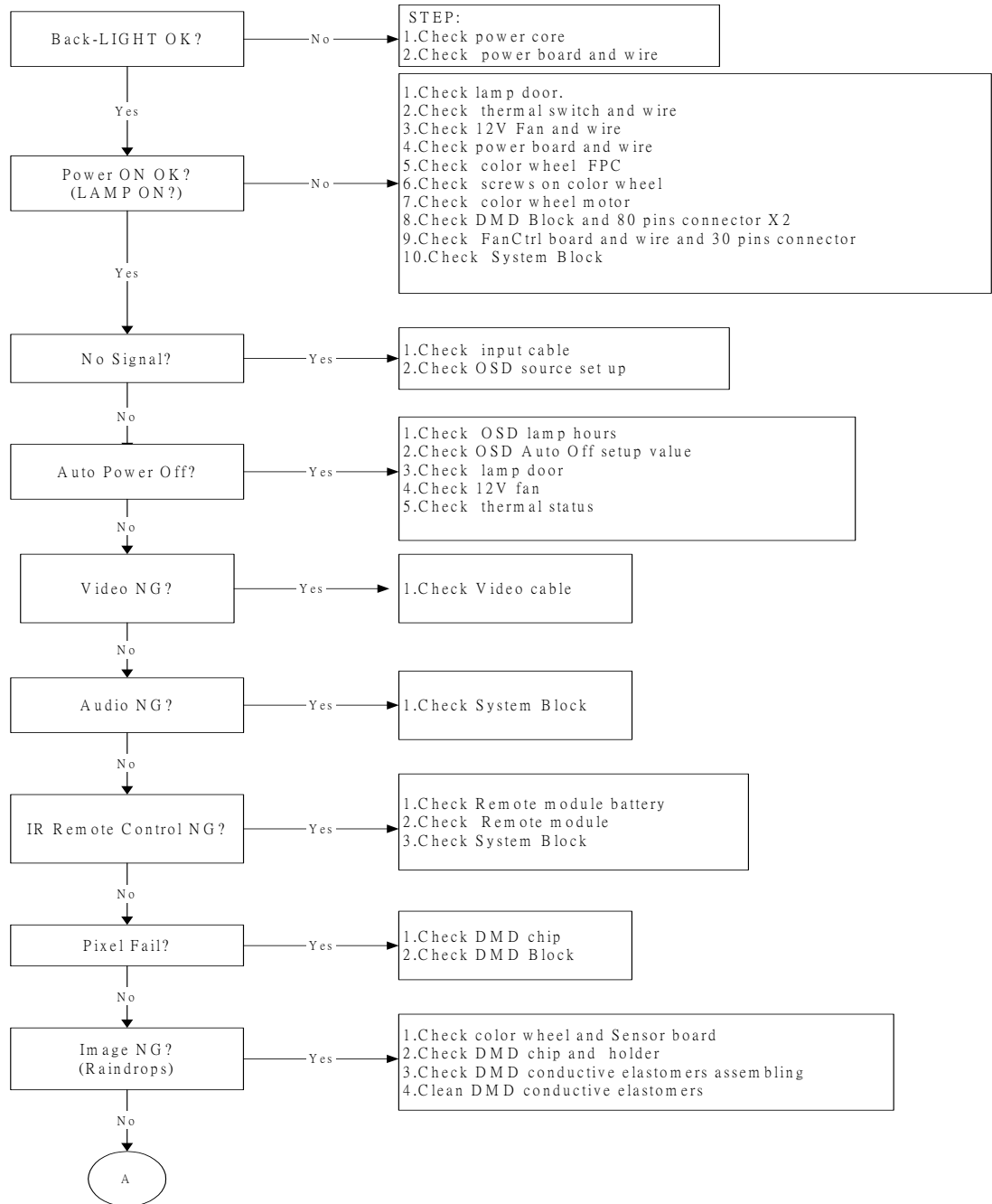


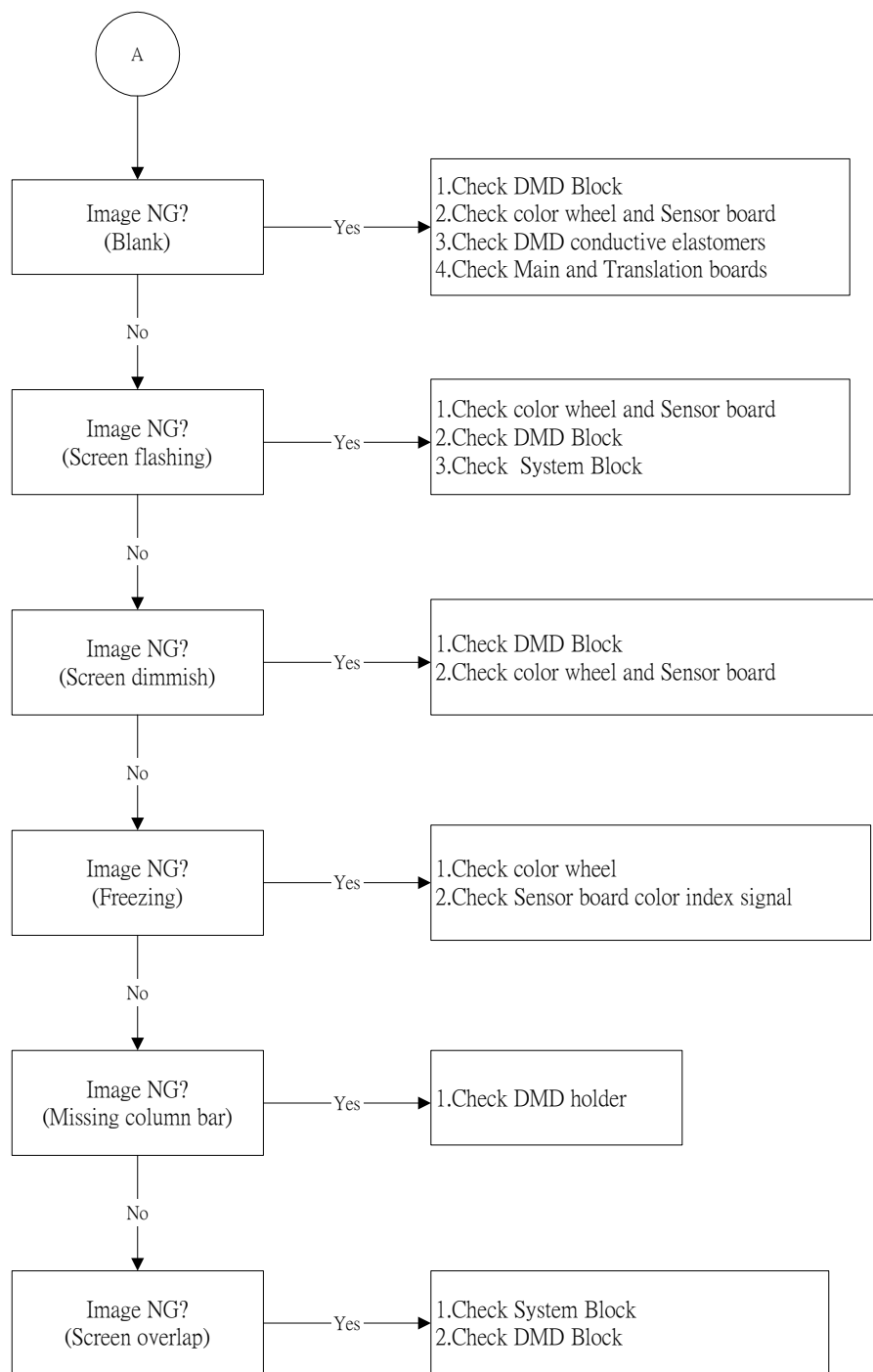
6. DC-DC BOARD



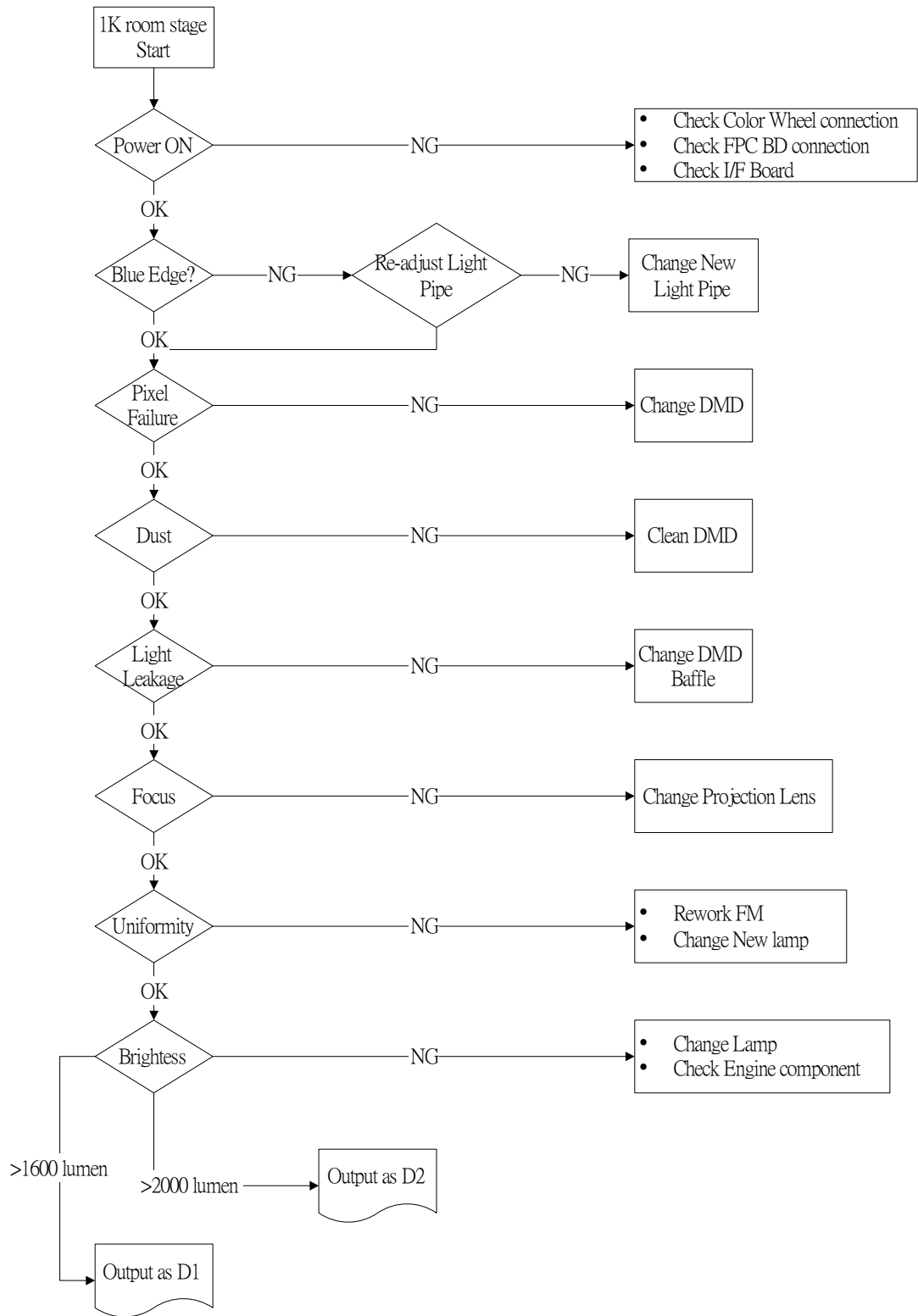
1. Final Assembly Trouble Shooting Guide

System Trouble Shooting Flow Char

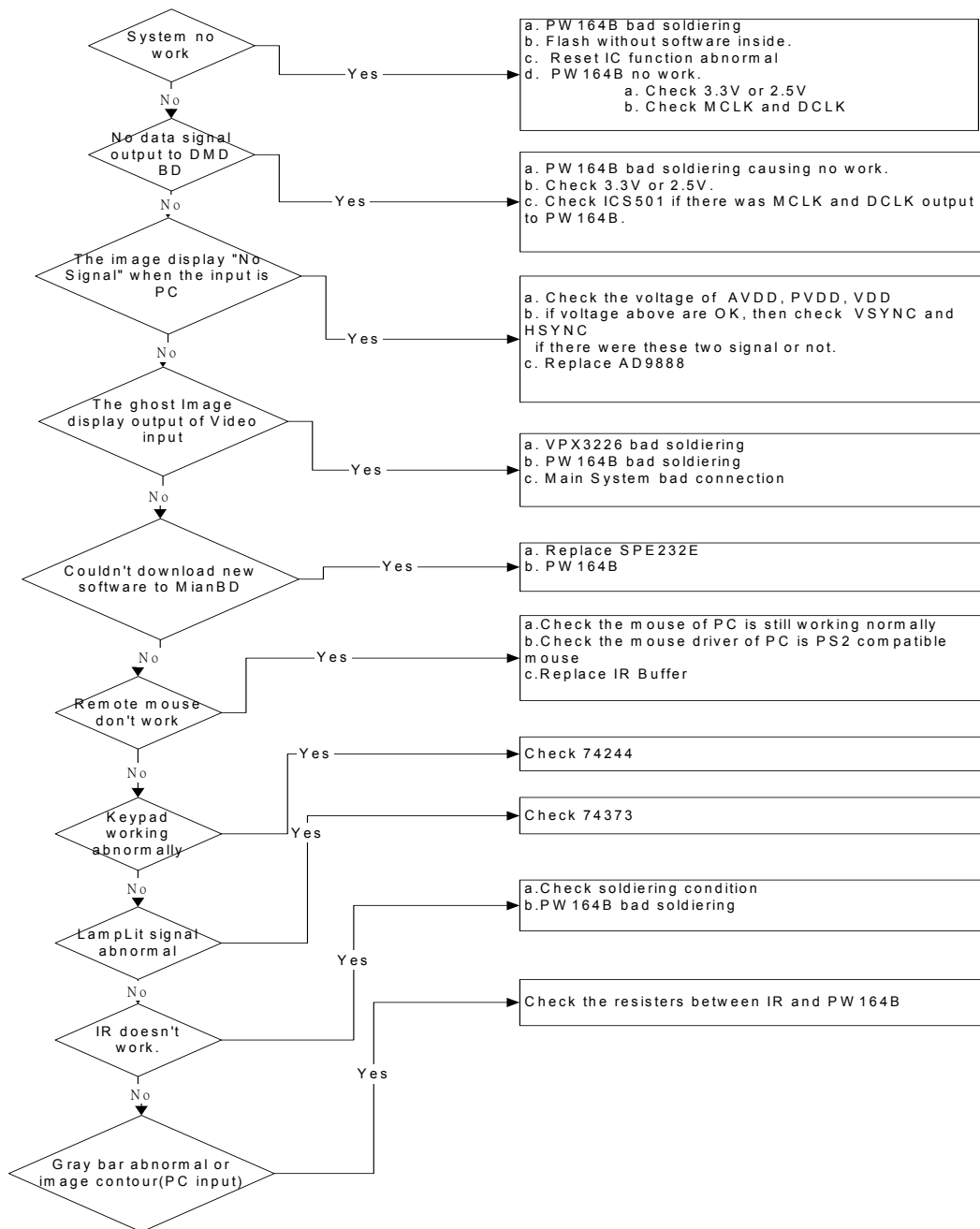




2. Engine Assembly Trouble Shooting Guide

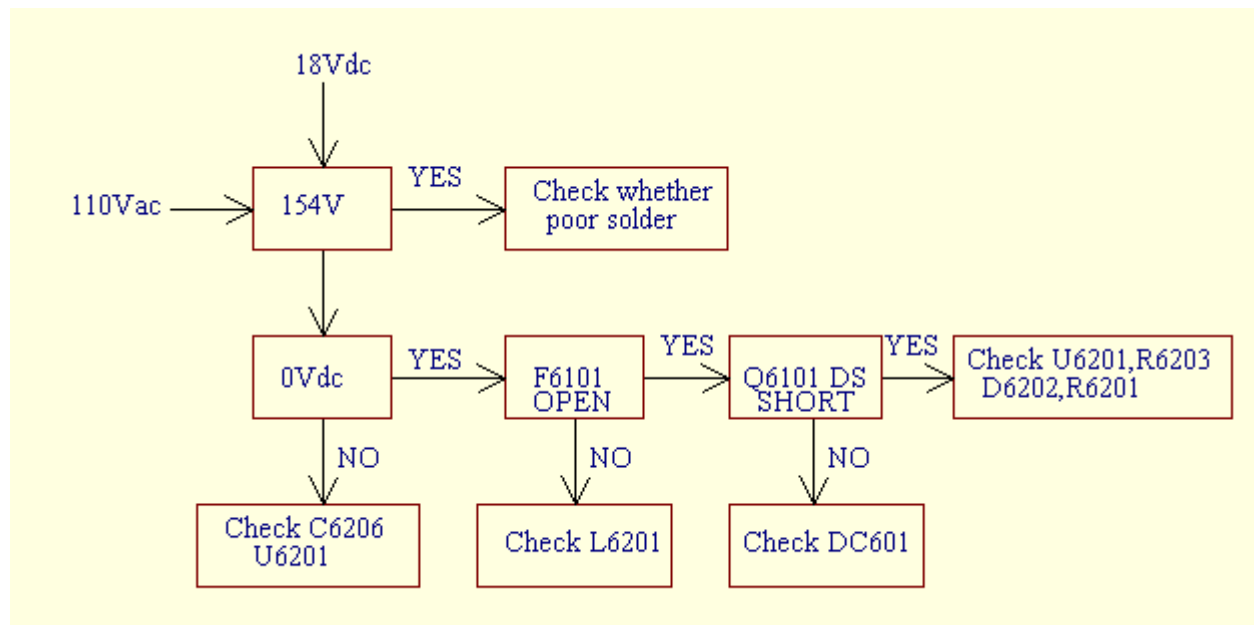


3. Main Block Trouble Shooting Guide

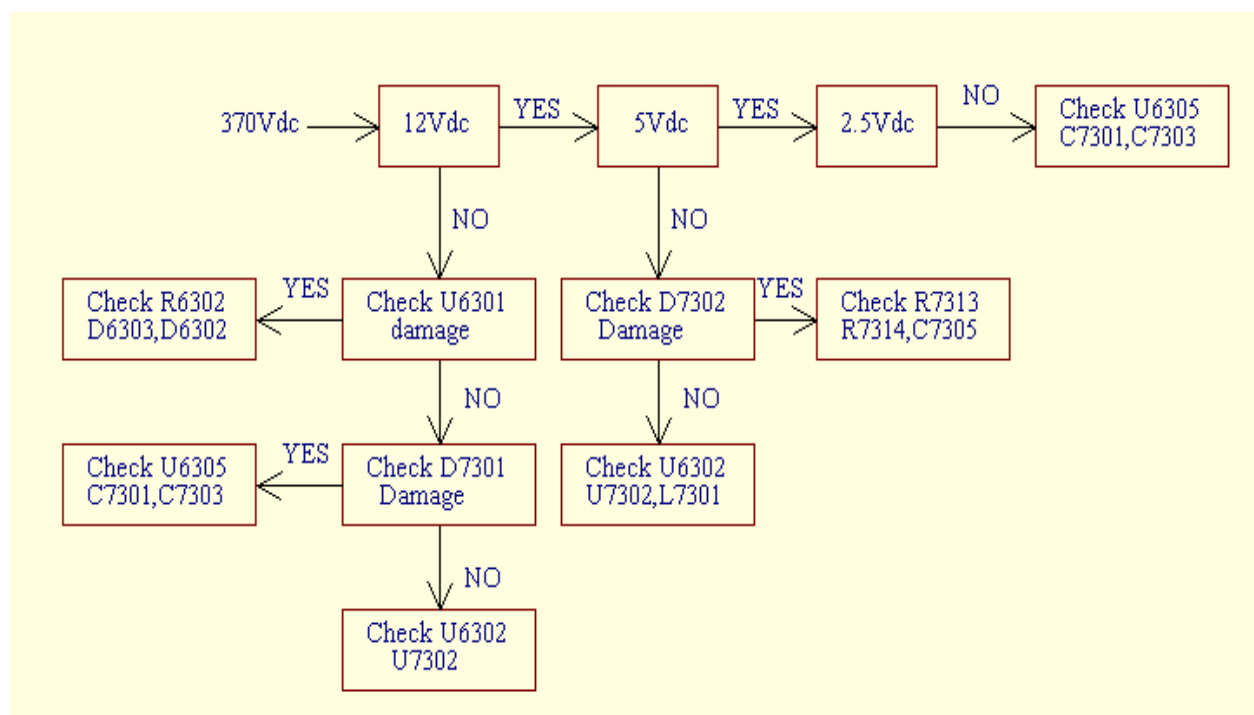


4. Power Supply Trouble Shooting Guide

PFC BOARD

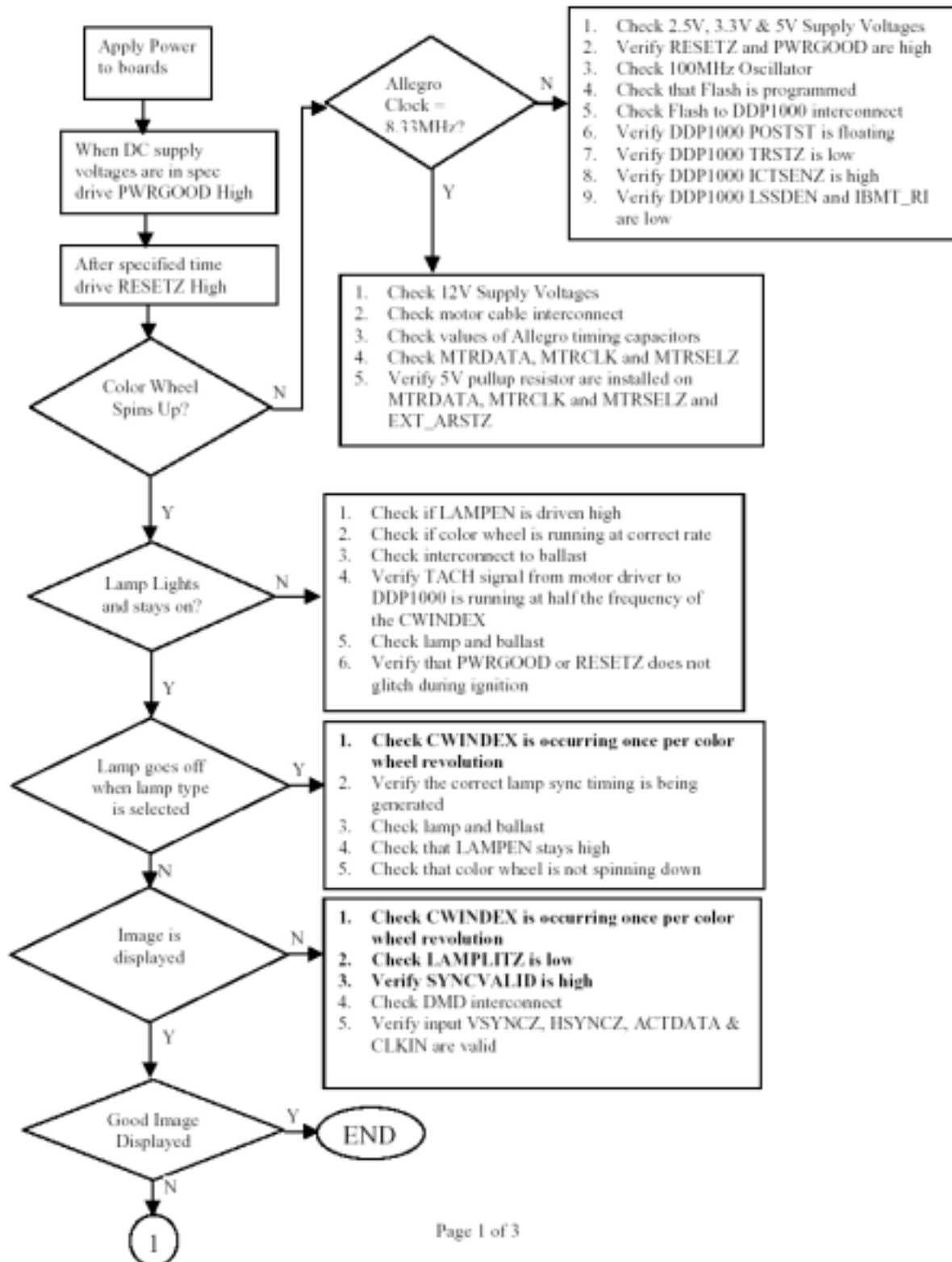


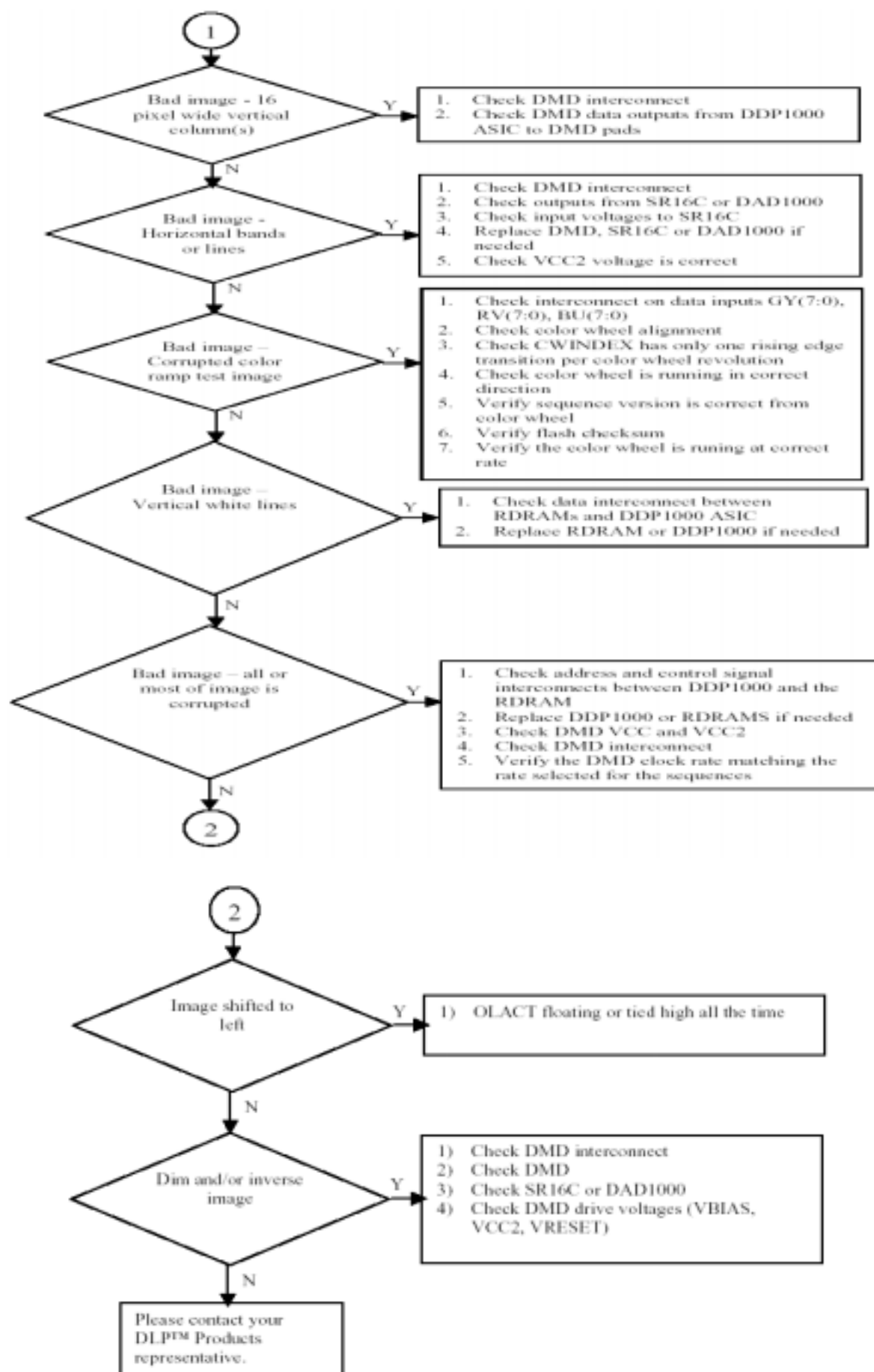
DX850 DC-DC BOARD



5. DMD Block Trouble Shooting Guide

DDP1000 Electronics Debugging Flow Diagram



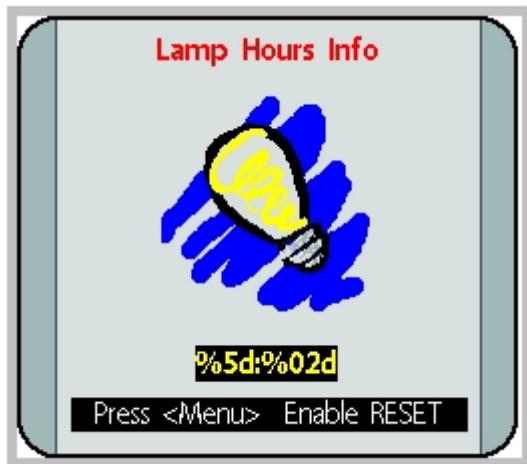


13. Service Adjustment Guide

JT51

1. How to enter factory menu:

- 1) Hold press "UP" button until the "Lamp hours info." OSD display on button-right of screen (Fig-1)

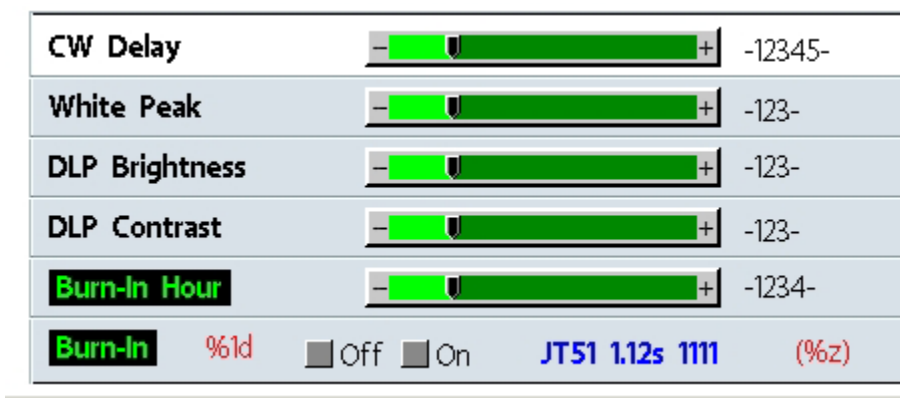


(Fig-1) Lamp Hours Info

- 2) Press keypad <Menu> and <Source> key simultaneously again, then enter Factory menu.

2. Factory layer:



1) DMD layer (Fig-3):



(Fig-3) DMD layer

1. **CW delay:** adjust color wheel delay. (Note this value Before Upgrade Software)
2. **White peak:** adjust DMD white peak. In PC mode default value set 10, in Video mode is 0. Software auto set this value as source find.
3. **DLP Brightness:** adjust DLP Brightness. default setting is 36. Do not change this value .
4. **DLP Contrast:** adjust DLP Contrast. Default setting is 30. Do not change this value.
5. **Burn-In Hour:** set how many hours to burn-in. You can enable burn-in on next selection.
6. **Burn-In:** after you set burn-in hours, set this selection to On and system will going to burn-in immediately. You can see color change (red, green, blue, black, white) on screen in turn. System will auto turn off after burn-in hour count down to 0 and burn-in complete. (You can also cancel burn-in sequence by set this selection to off).






2) ADC layer (Fig-4): (only available when input source is analog RGB)

ADC Brightness	Press <Right> to calibrate
ADC Contrast	Press <Right> to calibrate
ADC Offset RGB	-123- -123- -123-
ADC Gain RGB	-123- -123- -123-
Fac Brightness	 -123-
Fac Contrast	 -123-

(Fig-4) ADC layer

1. **ADC Brightness:** ADC brightness auto calibration black.
2. **ADC Contrast:** ADC contrast auto calibration white.
3. **ADC Offset RGB:** value to tell you calibrate result.
4. **ADC Gain RGB:** value to tell you calibrate result.
5. **Fac Brightness:** adjust default brightness value in source PC.
6. **Fac Contrast:** adjust default contrast value in source PC.

3) Color layer (Fig-5):



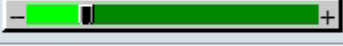



 YPbPr	O = %3d, %3d, %3d G = %3d, %3d, %3d ◀ ▶
 6500K	RGB = %3d, %3d, %3d ◀ ▶
 PC 9300K	RGB = %3d, %3d, %3d ◀ ▶
 Video 9300K	RGB = %3d, %3d, %3d ◀ ▶
 11500K	RGB = %3d, %3d, %3d ◀ ▶
%dx%d/%d Mode=%d Hper=%d Vline=%d	

(Fig-5) Color layer

3.1) PbPr: enter PbPr color control Layer.

PbPr Submenu

Press <Exit> to main menu

PbPr R Offset		-123-
PbPr G Offset		-123-
PbPr B Offset		-123-
PbPr R Gain		-123-
PbPr G Gain		-123-
PbPr B Gain		-123-

When Source is YPbPr (Never Change these setting)

(Note these values Before Upgrade Software)

PbPr G Offset: combine with user osd brightness in YPbPr

PbPr G Gain: combine with user osd contrast in YPbPr

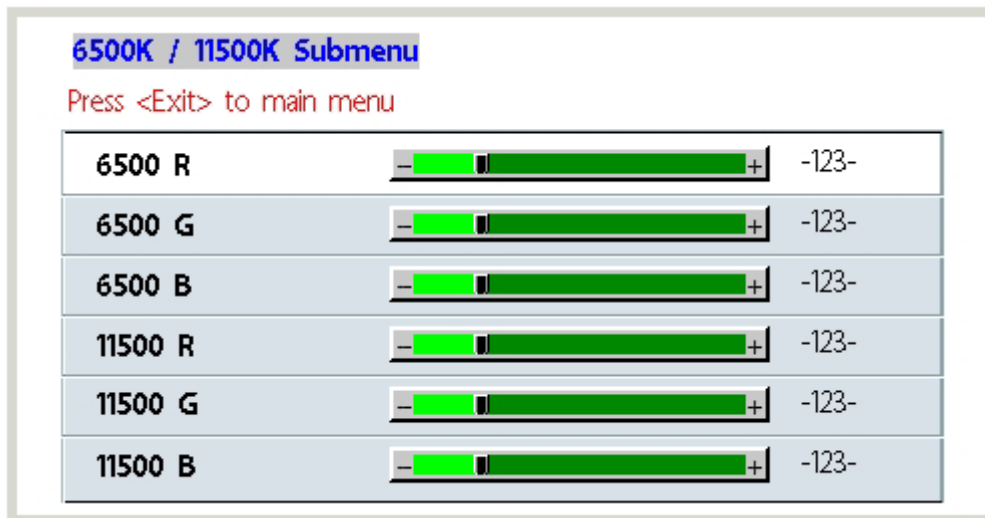
PbPr R Offset: offset of color red

PbPr G Offset: offset of color green

PbPr R Gain: saturation R

PbPr B Gain: saturation B

3.2) 6500,11500 R,G, B: 6500K/11500k submenu



(Never Change these setting)

6500 R: gain of color red while color temp is 6500

6500 G: gain of color green while color temp is 6500

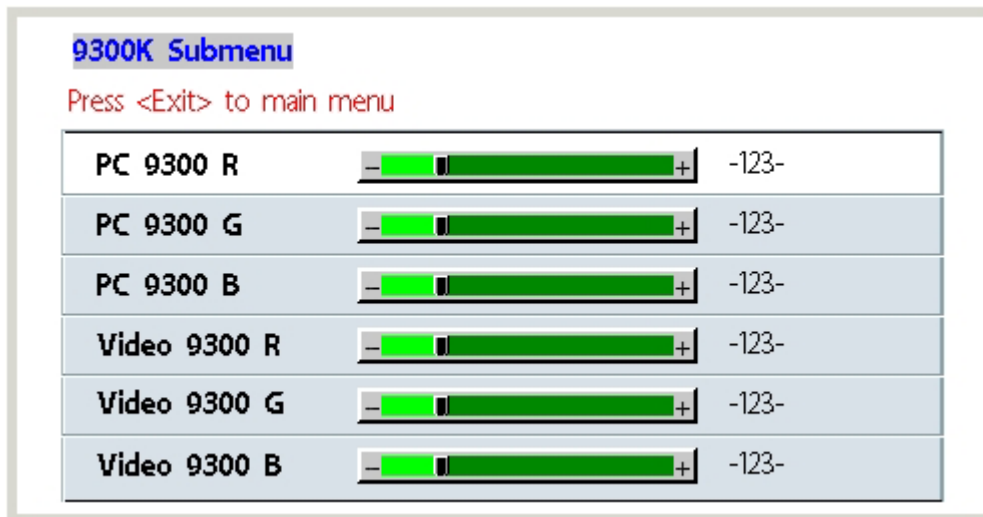
6500 B: gain of color blue while color temp is 6500

6500 R: gain of color red while color temp is 11500

11500 G: gain of color green while color temp is 11500

11500 B: gain of color blue while color temp is 11500

3.3) PC 9300 and Video 9300: 9300K submenu.



(Never Change these setting)

PC 9300 R: gain of color red while PC color temp is 9300

PC 9300 G: gain of color green while PC color temp is 9300

PC9300 B: gain of color blue while PC color temp is 9300

Video 9300 R: gain of color red while Video color temp is 9300

Video 9300 G: gain of color green while Video color temp is 9300

Video 9300 B: gain of color blue while Video color temp is 9300

4) Optic layer (Fig-5):

Test-Pattern 2	Off Gray ColorBar Board Point
SpokeLit	Press ◀ or ▶ to select
Curtain Red	Press ◀ or ▶ to select
Curtain Green	Press ◀ or ▶ to select
Curtain Blue	Press ◀ or ▶ to select
Curtain Black	Press ◀ or ▶ to select

(Fig-5) Optic layer

Test Pattern: system auto produce pattern for engineer test.




Spoke light: unit display full white.

Curtain Red: unit display full color red.

Curtain Green: unit display full color green.

Curtain Blue: unit display full color blue.

5) Lamp layer (Fig-6):

Gamma Index	Linear
Filter	RGB_320T_1PWF
Lamp Hour	 -1234-
Usage Hour	 -1234-
Fac Lamp Hours	 -1234-
Data Reset	Press <Right> to select

(Fig-6) Lamp layer

Interpolation: De-interlace Mode

Filter: system auto select Filter.

Lamp Hour: value to tell you lamp usage hours.

Usage Hour: value to tell you unit usage hours.

Fac Lamp Hours: Record all of the amp usage hours

Data Reset: Reset all data to default include factory assign value.

Never try to reset all data.

6) Others layer (Fig-7):



(Fig-7) YPbPr layer

Gamma index: system auto select DLP gamma index

Gray value: adjust here to check DMD fail pixel.

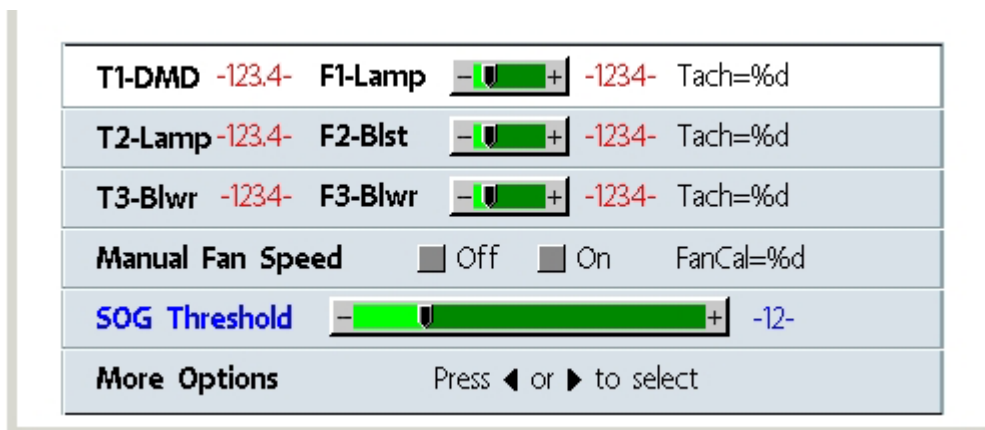
Blue value: adjust here to check DMD fail pixel.

Scaling: tell you what scaling mode is using now.

Pc/PbPr Mode: index of input timing

RS232: Enable / Disable RS232 control

7) FAN Layer:



T1-DMD: DMD sensor temperature

T2-Lamp: Lamp sensor temperature

T3-Blwr: Blower sensor temperature

F1-Lamp: Lamp fan speed in RPM

F2-Blst: Blaster fan speed in RPM


F3-Blwr: Blower fan speed in RPM

Manual Fan Speed: Change fan speed by manual.

SOG Threshold: Change SOG threshold level of AD

More Options: Change to Fac7 submenu

(Fac7 Submenu)

Fac7 Submenu	
Keystone Cal Select	Angle 0, Press <Auto>
RS232 Debug Info 1	On
RS232 Debug Info 2	On
RS232 Debug Info 3	On
RS232 Debug Info 4	PWM = %d / %d
RS232 Debug Test String	On
 Hard Reset	Press ◀ or ▶ to select

(This menu only for control testing)

JT50/52

Activating factory menu

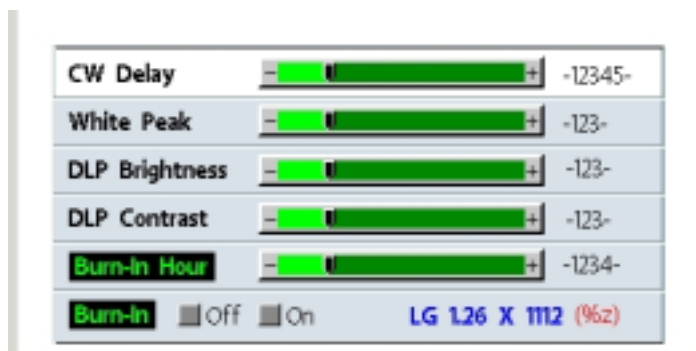
- I. Press and hold keypad **Up** key for 5 seconds to enter Lamp Life Info state.



- II. Press keypad **Menu** and **Source** key simultaneously to activate Factory Menu.

Factory menu details

I. DMD menu



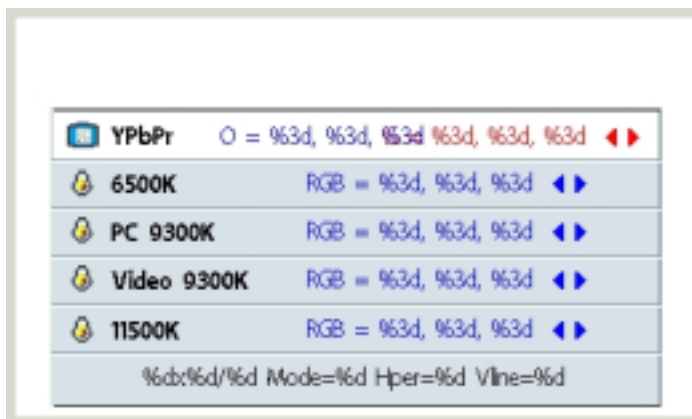
- **CW delay:** sets color wheel delay. **(Write down this value before upgrading the software)**
- **White peak:** sets DMD white peak. In PC mode default value set **10**, in Video mode is 2. Software automatically sets this value as source found.
- **DLP Brightness:** sets DLP Brightness. Default setting is **32**. Do not change this value.
- **DLP Contrast:** sets DLP Contrast. Default setting is **32**. Do not change this value.
- **Burn-In Hour:** sets how many hours to burn-in.
- **Burn-In:** activates the burn-in cycle. The burn-in cycle should be activated with no signal applied to the system. You can see color changes (red, green, blue, black, white) on screen running in turn. System will follow a on-off cycle for 2 hours, with 5-minute on and 15-minute off. After the on-off cycle, the system will stay on for the rest of the burn-in time set in Burn-In Hour. The system will automatically switch off at the end of the burn-in hour expires.

II. ADC menu (only available when input source is analog RGB)



- **ADC Brightness:** ADC brightness auto calibration black.
- **ADC Contrast:** ADC contrast auto calibration white.
- **ADC Offset RGB:** value to tell you calibrate result.
- **ADC Gain RGB:** value to tell you calibrate result.
- **Fac Brightness:** sets default brightness value in source PC.
- **Fac Contrast:** sets default contrast value in source PC.

III. Color menu



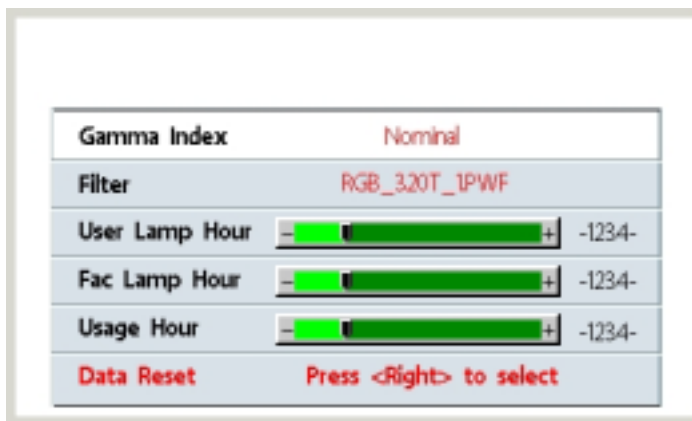
- **YPbPr:** color settings for YPbPr (only available with YPbPr signal).
- **6500K:** color settings for 6500K color temperature.
- **PC 9300K:** color settings for RGB/DVI 9300K color temperature.
- **Video 9300K:** color settings for YCbCr/S-Video/Comp Video 6500K color temperature.
- **11500K:** color settings for 11500K color temperature.
- **Mode info detailed:** for debug only

IV. Test pattern menu



- **Test Pattern1/2:** system generated patterns for engineering test.
- **Spoke light:** displays full white.
- **Curtain Red:** displays full color red.
- **Curtain Green:** displays full color green.
- **Curtain Blue:** displays full color blue.

V. Lamp menu



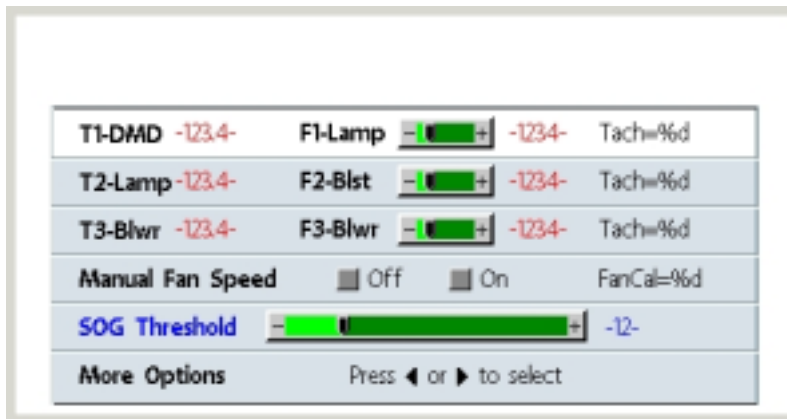
- **Gamma index:** sets DLP degamma index.
- **Filter:** sets filter settings.
- **User Lamp Hour:** lamp usage hours used by user. Resetable via Lamp Info Page.
- **Fac Lamp Hour:** lamp usage hours. Non-resetable.
- **Usage Hour:** tells unit usage hours.
- **Data Reset:** resets all data to default factory assigned values.

VI. Misc menu



- **Gamma:** sets Pixelworks gamma index.
- **Logo:** Default/Blue/Black are the same as in user menu. AlwaysBlue/AlwaysBlack will remove the logo menu item from user's Setup submenu and set the logo as blue/black.
- **Interpolation:** De-interlace mode
- **Scaling:** scaling mode
- **Gray value:** adjust here to check DMD fail pixel.
- **Blue value:** adjust here to check DMD fail pixel.

VII. Fan control menu



- **T1-DMD:** temperature and fan speed/tachometer values for DMD sensor.
- **T2-Lamp:** temperature and fan speed/tachometer values for lamp sensor.
- **T1-Blower:** temperature and fan speed/tachometer values for blower sensor.
- **Manual Fan Speed:** Off for normal operation. On for thermal engineering. FanCal is for blower fan engineering calibration.
- **SOG Threshold:** for debugging only. Never change this value.
- **More Options:** for debugging only.

14. Firmware Upgrade Procedure

JT51

Step 1

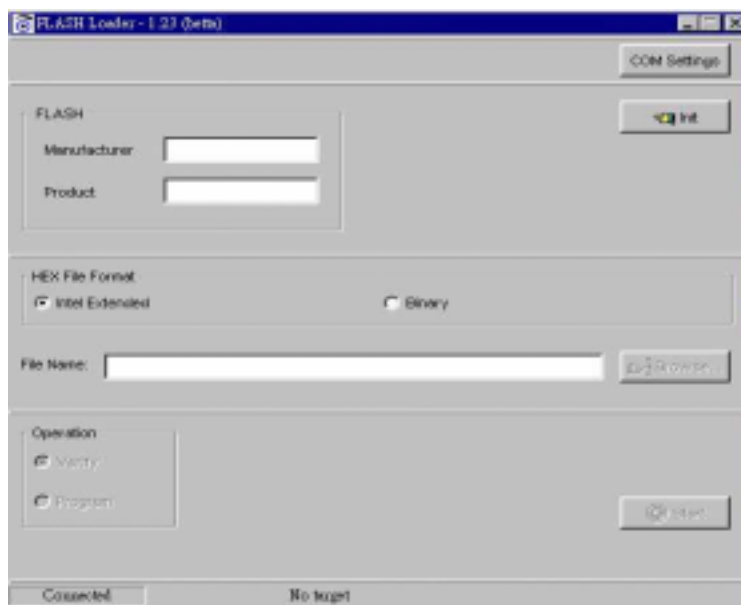
Setup Flashupgrader in computer.

Step 2

- Connect download cable with computer and projector
- Connect power cord with projector and check **power switch is OFF**.

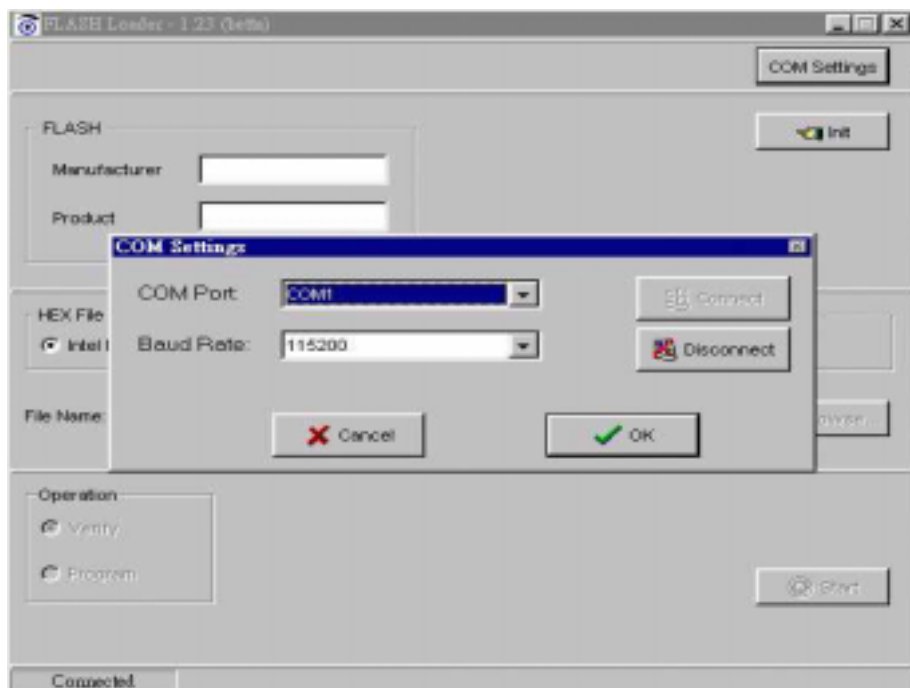
Step 3

Execute Flashupgrader.exe



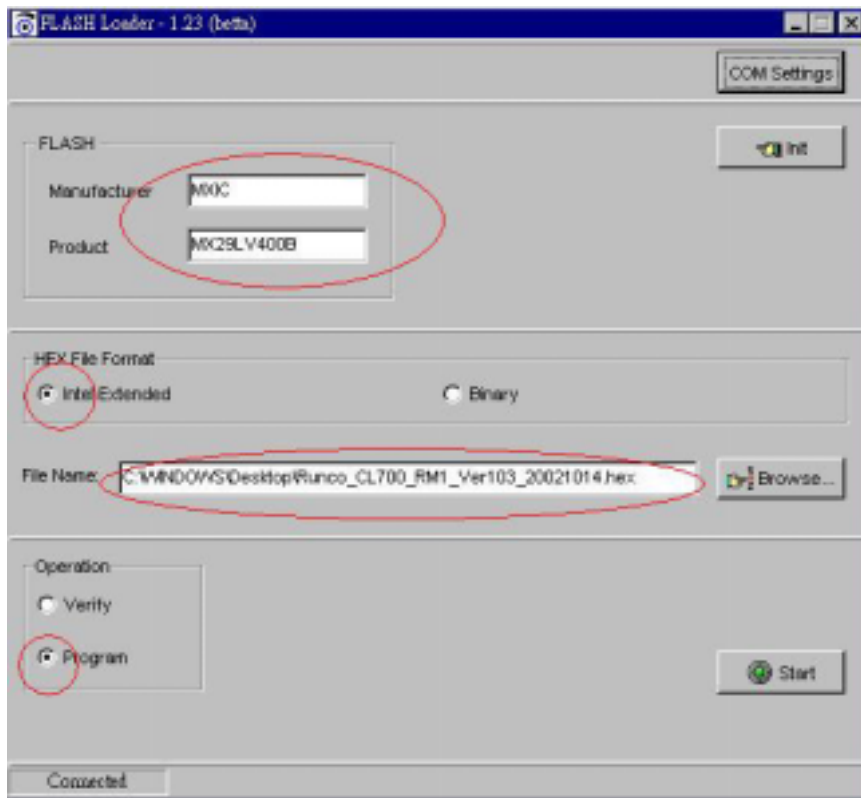
Step 4

Setting COM Port & Baud Rate



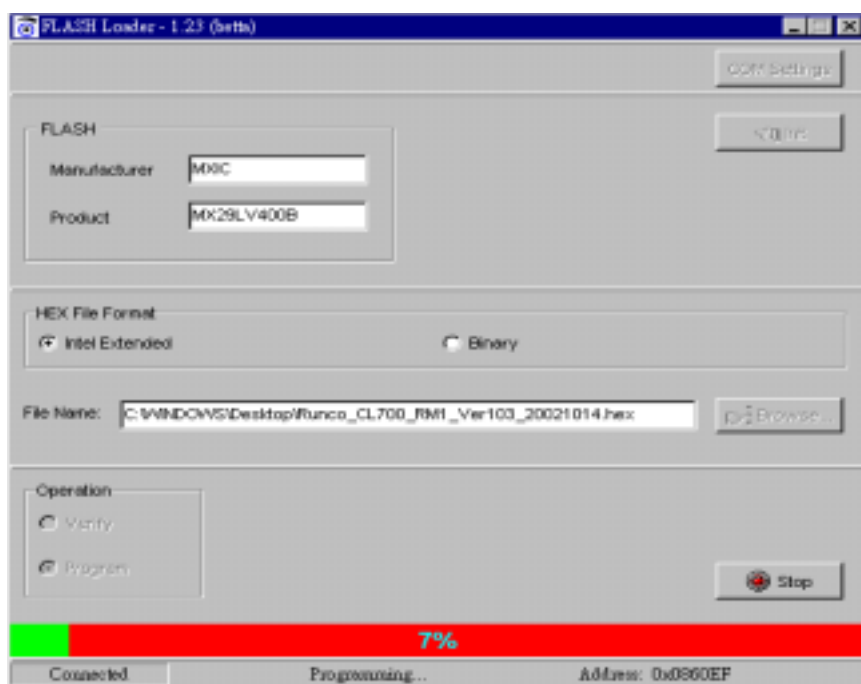
Step 5

- Turn on the power switch of the projector, then the Program will target the Flash.
- HEX File Format choose **Intel Extended**
- File Name choose
- Operation choose **Program**



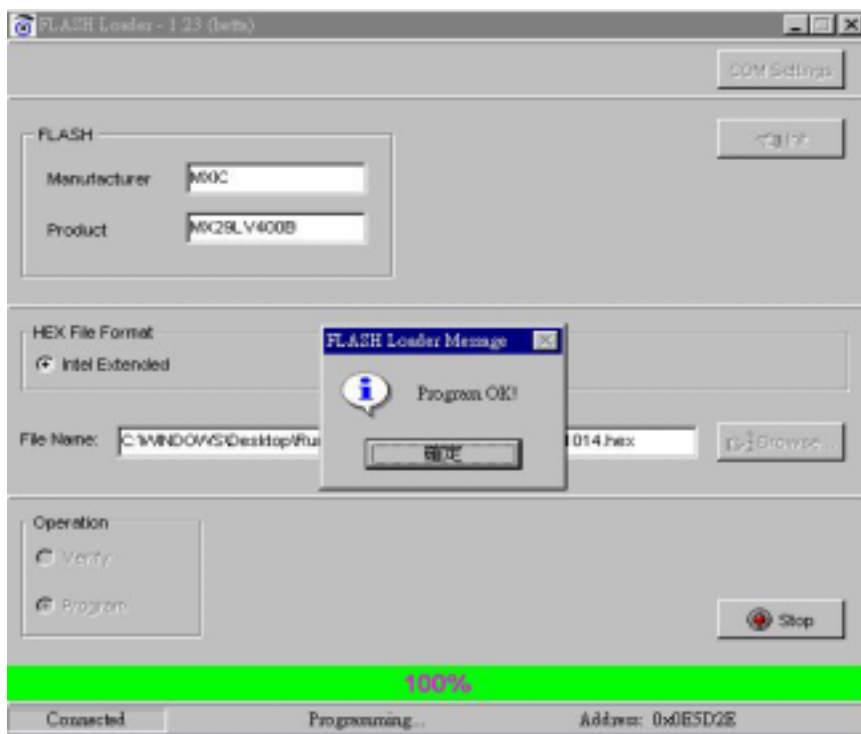
Step 6

Start download firmware



Step 7

Download finished.



Step 8

Turn off the power switch.

JT50/52

Hardware required

1. JT50/JT52 Download cable
2. DVD player with YPbPr (Progressive) output
3. PC timing/pattern generator
4. Personal computer or laptop computer

Software required

1. FlashUpgrader.exe (or FlashUpgraderNT.exe if you're using Windows NT®)
2. pwSDK.inf
3. romcode.hex
4. configdata.hex
5. gui.hex
6. flasher.hex

Download procedure

1. Record **CW delay** value in factory page 1 on the unit to be upgraded.
2. Record all Color Temperature values in factory page 3.
3. Power down the projector and turn the power switch off after cooling.
4. Hook up the projector to the COM port on the PC with JT50/JT52 download cable.
5. Run FlashUpgrader.exe and follow the next step to open the file pwSDK.inf. You can browse to locate it. Select the correct COM port and use 115200 as the BAUD rate.
6. When the page with 'Download progress for the file Flasher.HEX' shows up, turn on the power switch.
7. Now the progress bar in the FlashUpgrader should be running.
8. Download is complete. The factory settings should be restored.

Calibration procedure

1. Use any video pattern generator to output XGA 60Hz PC timing with 32 grayscale pattern. Enter the factory OSD page 2 and execute **ADC Brightness** and **ADC Contrast**.
2. Restore **CW delay** value and color temperature values.

Verification

Check the version number in the factory OSD page 1.

15. RS232 Codes

JT51

Event Packet Type command:

Command	Packet Header (7 bytes)	Packet Payload (6 bytes)
Power	BE EF 02 06 00 13 CE	AA 00 00 00 00 00
Auto	BE EF 02 06 00 F7 C8	8E 00 00 00 00 00
Input select	BE EF 02 06 00 C4 C8	8D 00 00 00 00 00
Menu	BE EF 02 06 00 26 C9	8F 00 00 00 00 00
Exit	BE EF 02 06 00 FE CA	97 00 00 00 00 00
Zoom +	BE EF 02 06 00 AD CD	B4 00 00 00 00 00
Zoom -	BE EF 02 06 00 7C CC	B5 00 00 00 00 00
PIP Source	BE EF 02 06 00 37 C6	CE 00 00 00 00 00
Freeze	BE EF 02 06 00 46 CE	AF 00 00 00 00 00
Ratio	BE EF 02 06 00 04 C6	CD 00 00 00 00 00
Force PC	BE EF 02 06 00 AE C6	C7 00 00 00 00 00
Force Video	BE EF 02 06 00 51 C6	C8 00 00 00 00 00
Force S-Video	BE EF 02 06 00 80 C7	C9 00 00 00 00 00
Force YPbPr	BE EF 02 06 00 B3 C7	CA 00 00 00 00 00
RS232 Power ON	BE EF 02 06 00 3E C4	D7 00 00 00 00 00
RS232 Power OFF	BE EF 02 06 00 C1 C4	D8 00 00 00 00 00
Blank	BE EF 02 06 00 1A CC	B3 00 00 00 00 00

Operation Packet Type command

PC Picture Controls

Command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Brightness +	BE EF 03 19 00 44 A0	03 C7 02 CC CC 00 00 00 00 CC×16
Brightness -	BE EF 03 19 00 2A 0A	04 C7 02 CC CC 00 00 00 00 CC×16
Contrast +	BE EF 03 19 00 2E 19	03 C5 02 CC CC 00 00 00 00 CC×16
Contrast -	BE EF 03 19 00 40 B3	04 C5 02 CC CC 00 00 00 00 CC×16

YPbPr Picture Controls

Command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Brightness +	BE EF 03 19 00 7B 14	03 D9 02 CC CC FF FF FF FF CC×16
Brightness -	BE EF 03 19 00 15 BE	04 D9 02 CC CC FF FF FF FF CC×16
Contrast +	BE EF 03 19 00 FA 6A	03 F1 02 CC CC FF FF FF FF CC×16
Contrast -	BE EF 03 19 00 94 C0	04 F1 02 CC CC FF FF FF FF CC×16

S-Video / Composite Video Picture Controls

Command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Brightness +	BE EF 03 19 00 E9 18	03 35 02 CC CC 00 00 00 00 CC x16
Brightness -	BE EF 03 19 00 87 B2	04 35 02 CC CC 00 00 00 00 CC x16
Contrast +	BE EF 03 19 00 16 FC	03 36 02 CC CC 00 00 00 00 CC x16
Contrast -	BE EF 03 19 00 78 56	04 36 02 CC CC 00 00 00 00 CC x16
Color +	BE EF 03 19 00 83 A1	03 37 02 CC CC 00 00 00 00 CC X16
Color -	BE EF 03 19 00 ED 0B	04 37 02 CC CC 00 00 00 00 CC x16
Tint +	BE EF 03 19 00 00 0F	03 4A 02 CC CC 00 00 00 00 CC x16
Tint -	BE EF 03 19 00 6E A5	04 4A 02 CC CC 00 00 00 00 CC x16
Sharpness +	BE EF 03 19 00 43 D0	03 38 02 CC CC 00 00 00 00 CC x16
Sharpness -	BE EF 03 19 00 2D 74	04 38 02 CC CC 00 00 00 00 CC x16

Misc Controls

Command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Color Temp -50 (0)	BE EF 03 19 00 69 49	01 ED 02 CC CC 00 00 00 00 CE FF FF FF CC CC CC CC CC CC CC CC CC CC CC
0 (10)	BE EF 03 19 00 1C 89	01 ED 02 CC CC 00 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC
50 (20)	BE EF 03 19 00 69 1C	01 ED 02 CC CC 00 00 00 00 32 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC

PIP Controls

PIP Size		
Off	BE EF 03 19 00 15 02	01 8C 02 CC CC 01 00 00 00 03 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Small	BE EF 03 19 00 E4 42	01 8C 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Medium	BE EF 03 19 00 74 83	01 8C 02 CC CC 01 00 00 00 01 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Large	BE EF 03 19 00 85 C3	01 8C 02 CC CC 01 00 00 00 02 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
PIP Position		
Upper-Left	BE EF 03 19 00 1D 66	01 43 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC

Upper-Center	BE EF 03 19 00 8D A7	01 43 02 CC CC 01 00 00 00 01 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Upper-right	BE EF 03 19 00 7C E7	01 43 02 CC CC 01 00 00 00 02 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Mid-Left	BE EF 03 19 00 EC 26	01 43 02 CC CC 01 00 00 00 03 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Mid-Center	BE EF 03 19 00 DE 64	01 43 02 CC CC 01 00 00 00 04 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Mid-Right	BE EF 03 19 00 4E A5	01 43 02 CC CC 01 00 00 00 05 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Lower-Left	BE EF 03 19 00 BF E5	01 43 02 CC CC 01 00 00 00 06 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Lower-Center	BE EF 03 19 00 2F 24	01 43 02 CC CC 01 00 00 00 07 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Lower-Right	BE EF 03 19 00 DB 61	01 43 02 CC CC 01 00 00 00 08 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
PIP Source		
S-Video	BE EF 03 19 00 E8 36	01 DA 02 CC CC 01 00 00 00 03 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
Video	BE EF 03 19 00 DA 74	01 DA 02 CC CC 01 00 00 00 04 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
PIP Brightness -50 (48)	BE EF 03 19 00 FE 0B	01 35 02 CC CC 01 00 00 00 CE FF FF FF CC CC CC CC CC CC CC CC CC CC CC CC CC
0 (126)	BE EF 03 19 00 8B CB	01 35 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
50 (204)	BE EF 03 19 00 FE 5E	01 35 02 CC CC 01 00 00 00 32 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
PIP Contrast -50 (58)	BE EF 03 19 00 01 EF	01 36 02 CC CC 01 00 00 00 CE FF FF FF CC CC CC CC CC CC CC CC CC CC CC CC CC
0 (131)	BE EF 03 19 00 74 2F	01 36 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
50 (204)	BE EF 03 19 00 01 BA	01 36 02 CC CC 01 00 00 00 32 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
PIP Color -50 (129)	BE EF 03 19 00 94 B2	01 37 02 CC CC 01 00 00 00 CE FF FF FF CC CC CC CC CC CC CC CC CC CC CC CC CC
0 (157)	BE EF 03 19 00 E1 72	01 37 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC CC
-50 (185)	BE EF 03 19 00 94 E7	01 37 02 CC CC 01 00 00 00 32 00 00 00 CC CC CC

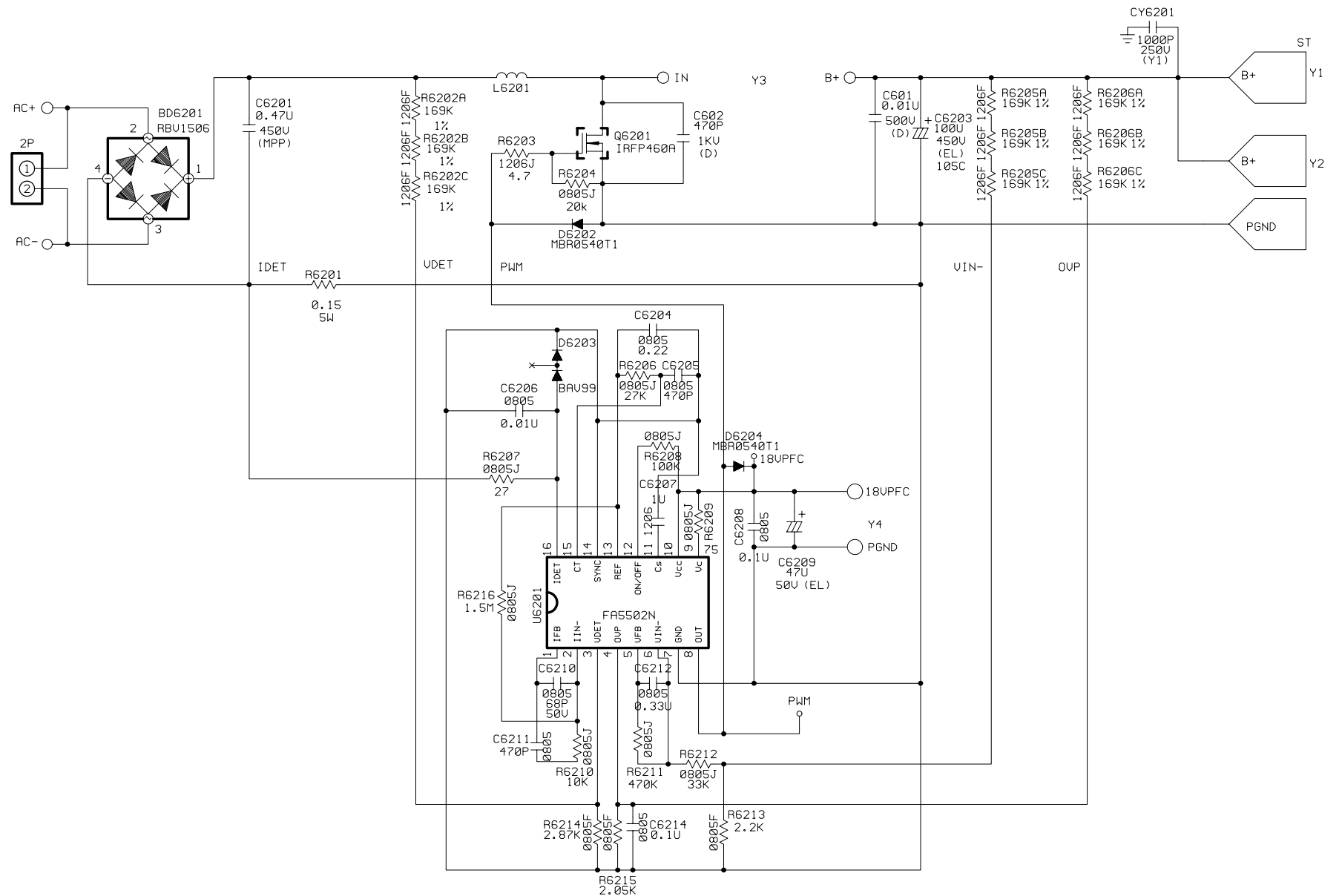
		CC CC CC CC CC CC CC CC CC
PIP Tint -50 (0)	BE EF 03 19 00 17 1C	01 4A 02 CC CC 01 00 00 00 CE FF FF FF CC CC CC CC CC CC CC CC CC CC CC CC
0 (128)	BE EF 03 19 00 62 DC	01 4A 02 CC CC 01 00 00 00 00 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC
50 (255)	BE EF 03 19 00 17 49	01 4A 02 CC CC 01 00 00 00 32 00 00 00 CC CC CC CC CC CC CC CC CC CC CC CC

Remote Controls Code

Keypad Item	op Code	Model/Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Menu	843	JT50,51	BE	EF	3	19	0	BD	82	5	4B	3	0	0	0	0
UP	844	JT50,51	BE	EF	3	19	0	97	14	5	4C	3	0	0	0	0
Down	845	JT50,51	BE	EF	3	19	0	2	49	5	4D	3	0	0	0	0
Left	846	JT50,51	BE	EF	3	19	0	FD	AD	5	4E	3	0	0	0	0
Right	847	JT50,51	BE	EF	3	19	0	68	F0	5	4F	3	0	0	0	0
Blank	848	JT50,51	BE	EF	3	19	0	3D	4C	5	50	3	0	0	0	0
Auto	849	JT50,51	BE	EF	3	19	0	A8	11	5	51	3	0	0	0	0
Return	850	JT50,51	BE	EF	3	19	0	57	F5	5	52	3	0	0	0	0
Freeze	851	JT50,51	BE	EF	3	19	0	C2	A8	5	53	3	0	0	0	0
Power	852	JT50,51	BE	EF	3	19	0	E8	3E	5	54	3	0	0	0	0
Source	853	JT50,51	BE	EF	3	19	0	7D	63	5	55	3	0	0	0	0
PIP Next source	854	JT50,51	BE	EF	3	19	0	82	87	5	56	3	0	0	0	0
PIP Position	855	JT50,51	BE	EF	3	19	0	17	DA	5	57	3	0	0	0	0
Zoom In	856	JT50,51	BE	EF	3	19	0	D7	AB	5	58	3	0	0	0	0
Zoom Out	857	JT50,51	BE	EF	3	19	0	42	F6	5	59	3	0	0	0	0

JT50/52

Command	Packet Header (7 bytes)	Packet Payload (25 bytes)
Power On	BE EF 03 19 00 83 A9	01 23 03 CC CC FF FF FF FF 01 00 00 00 CC×12
Power Off	BE EF 03 19 00 13 68	01 23 03 CC CC FF FF FF FF 00 00 00 00 CC×12
Select RGB	BE EF 03 19 00 C8 4B	01 DA 02 CC CC 00×8 CC×12
Select DVI	BE EF 03 19 00 58 8A	01 DA 02 CC CC 00×4 01 00 00 00 CC×12
Select YPbPr	BE EF 03 19 00 A9 CA	01 DA 02 CC CC 00×4 02 00 00 00 CC×12
Select S-Video	BE EF 03 19 00 0B 49	01 DA 02 CC CC 00×4 04 00 00 00 CC×12
Select Video	BE EF 03 19 00 9B 88	01 DA 02 CC CC 00×4 05 00 00 00 CC×12
Menu	BE EF 03 19 00 BD 82	05 4B 03 00×22
UP	BE EF 03 19 00 97 14	05 4C 03 00×22
Down	BE EF 03 19 00 02 49	05 4D 03 00×22
Left	BE EF 03 19 00 FD AD	05 4E 03 00×22
Right	BE EF 03 19 00 68 F0	05 4F 03 00×22
Blank	BE EF 03 19 00 3D 4C	05 50 03 00×22
Auto	BE EF 03 19 00 A8 11	05 51 03 00×22
Return	BE EF 03 19 00 57 F5	05 52 03 00×22
Freeze	BE EF 03 19 00 C2 A8	05 53 03 00×22
Power	BE EF 03 19 00 E8 3E	05 54 03 00×22
Source	BE EF 03 19 00 7D 63	05 55 03 00×22
PIP Next Source	BE EF 03 19 00 82 87	05 56 03 00×22
PIP Position	BE EF 03 19 00 17 DA	05 57 03 00×22
Zoom In	BE EF 03 19 00 D7 AB	05 58 03 00×22
Zoom Out	BE EF 03 19 00 42 F6	05 59 03 00×22
Ratio	BE EF 03 19 00 BD 12	05 5A 03 00×22
PIP Size	BE EF 03 19 00 28 4F	05 5B 03 00×22
Mute	BE EF 03 19 00 02 D9	05 5C 03 00×22
Volume +	BE EF 03 19 00 97 84	05 5D 03 00×22
Volume -	BE EF 03 19 00 68 60	05 5E 03 00×22



CY6201
1000P
250V
(Y1)

ST
Y1

B+
Y2

PGND

IN

Y3

B+

C601
0.01U
500U
(D) ZZ

+ C6203
100U
450V
(EL) 105C

1206F 1206F 1206F

R6205A 169K 1%

R6205B 169K 1%

R6205C 169K 1%

1206F 1206F 1206F

R6206A 169K 1%

R6206B 169K 1%

R6206C 169K 1%

1206F 1206F 1206F

R6206A 169K 1%

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R6206A 169K 1%

R6206B 169K 1%

R6206C 169K 1%

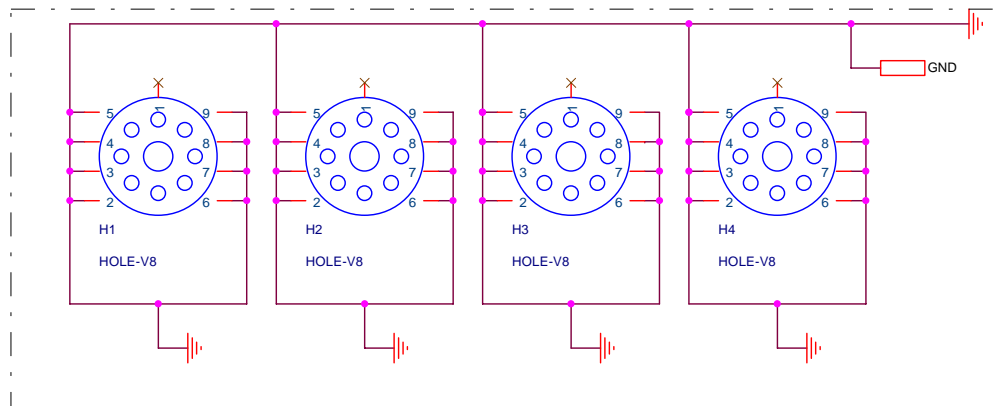
1206F 1206F 1206F

R6206A 169K 1%

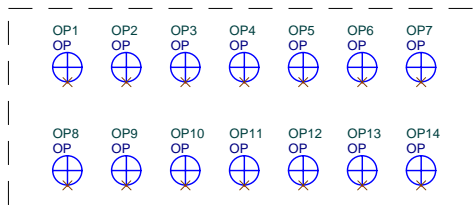
R6206B 169K 1%

R6206C 169K 1%

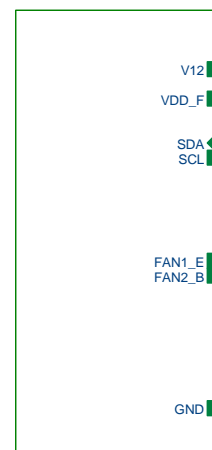
Screw Holes



Optical Points

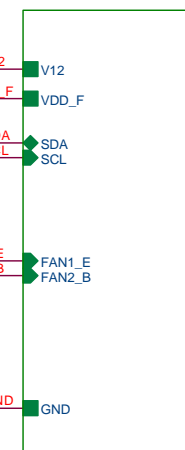


POWER

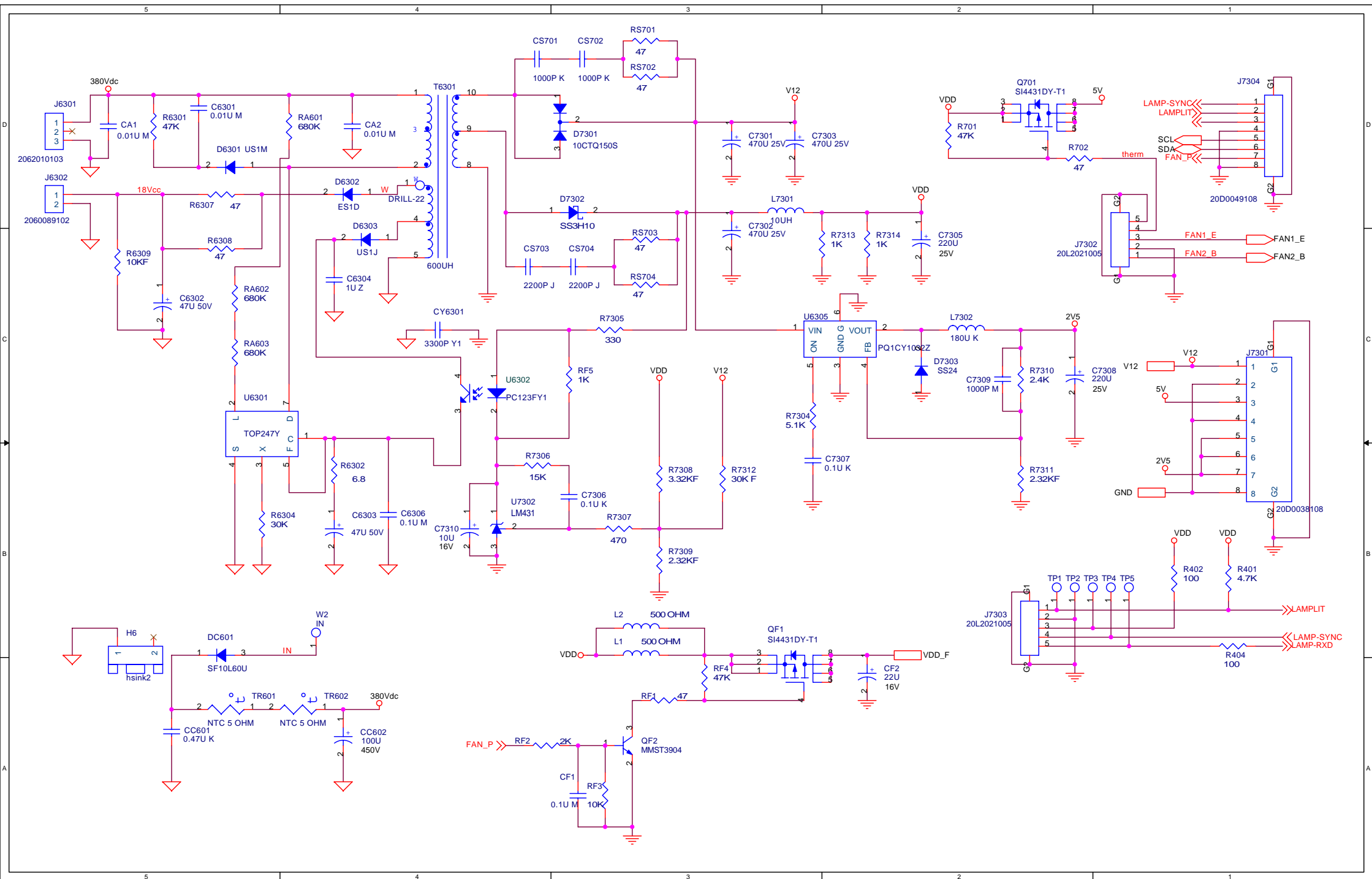


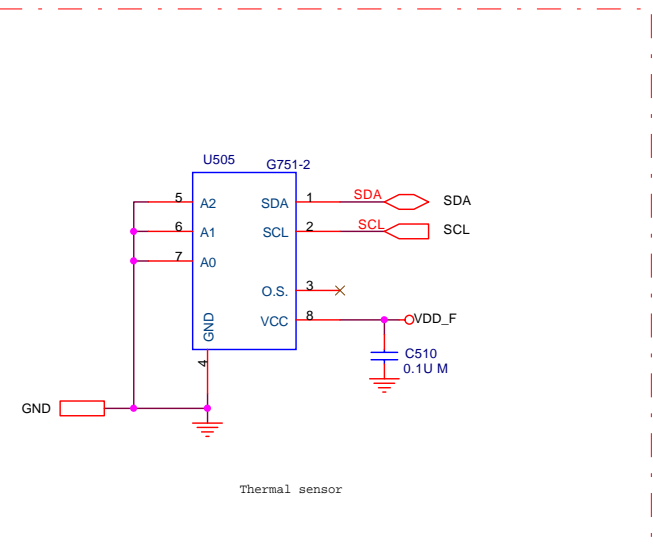
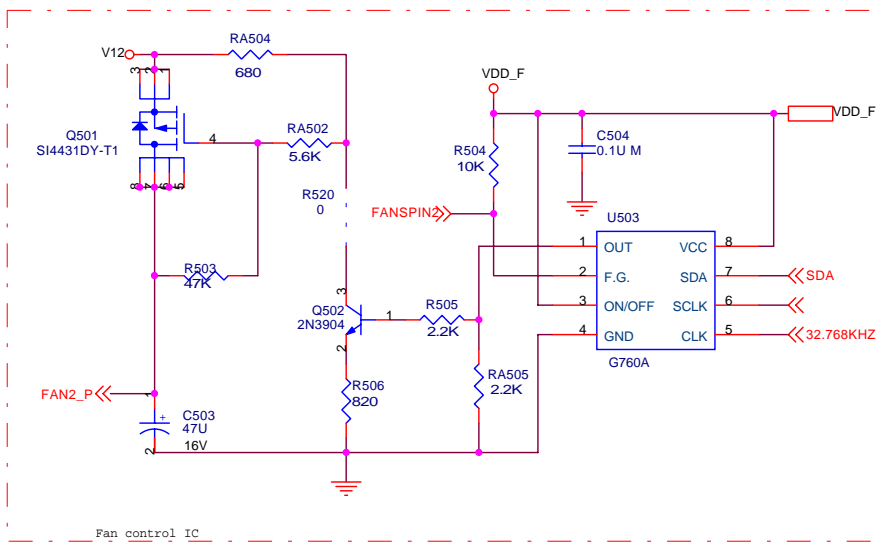
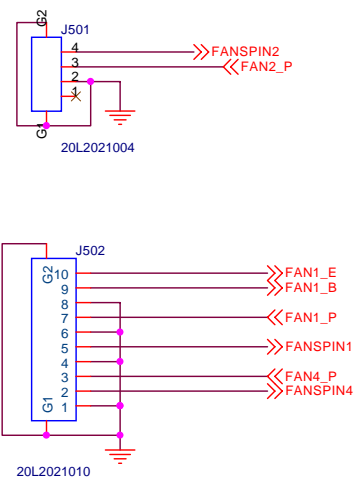
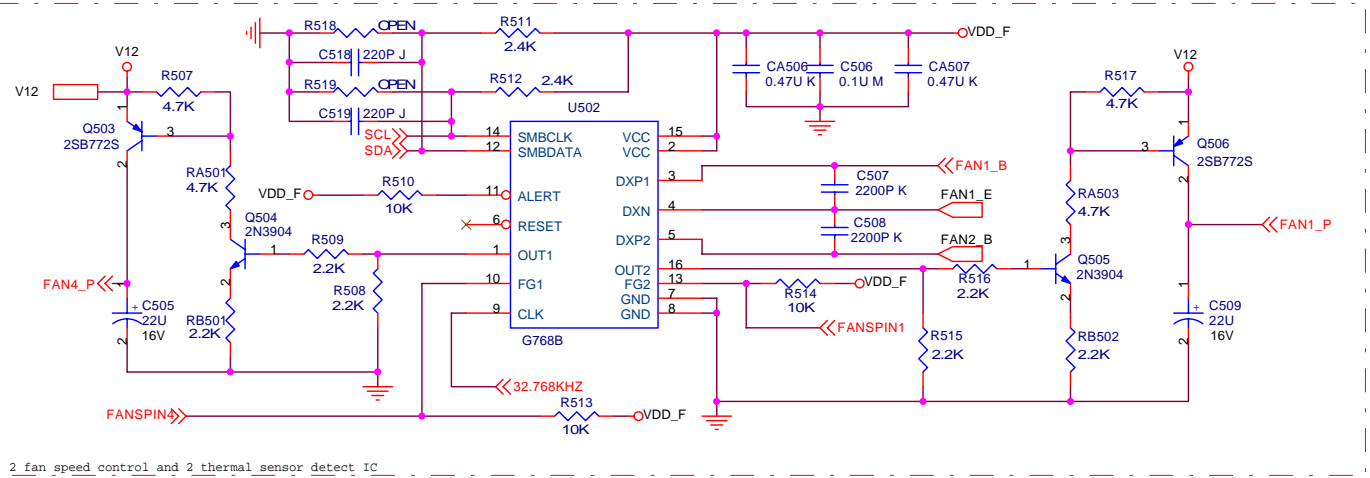
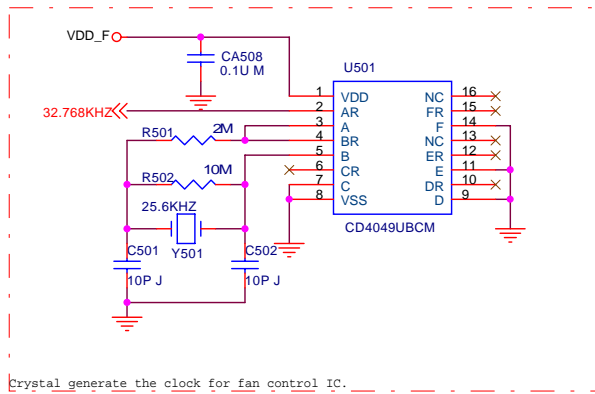
01_POWER

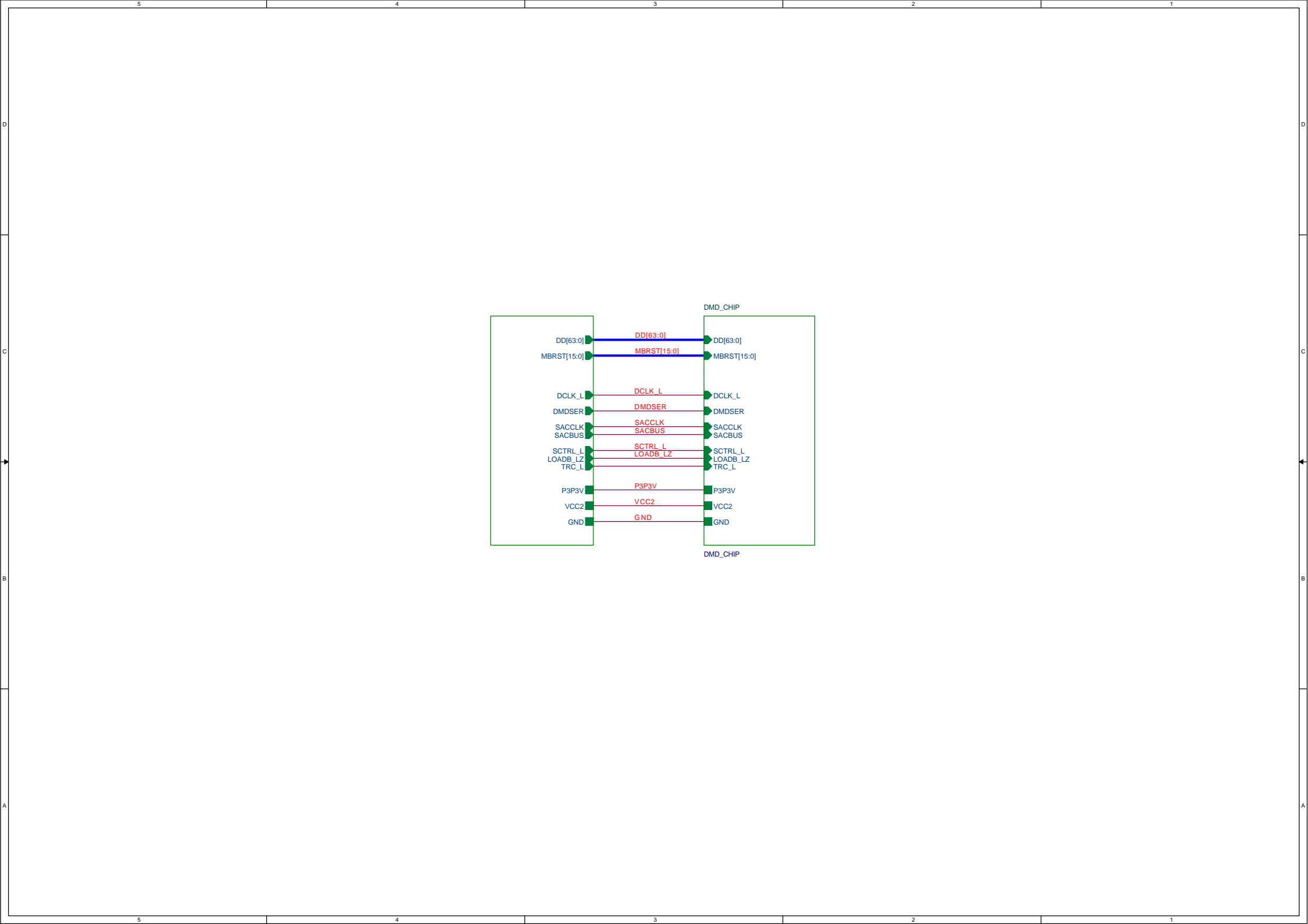
FAN

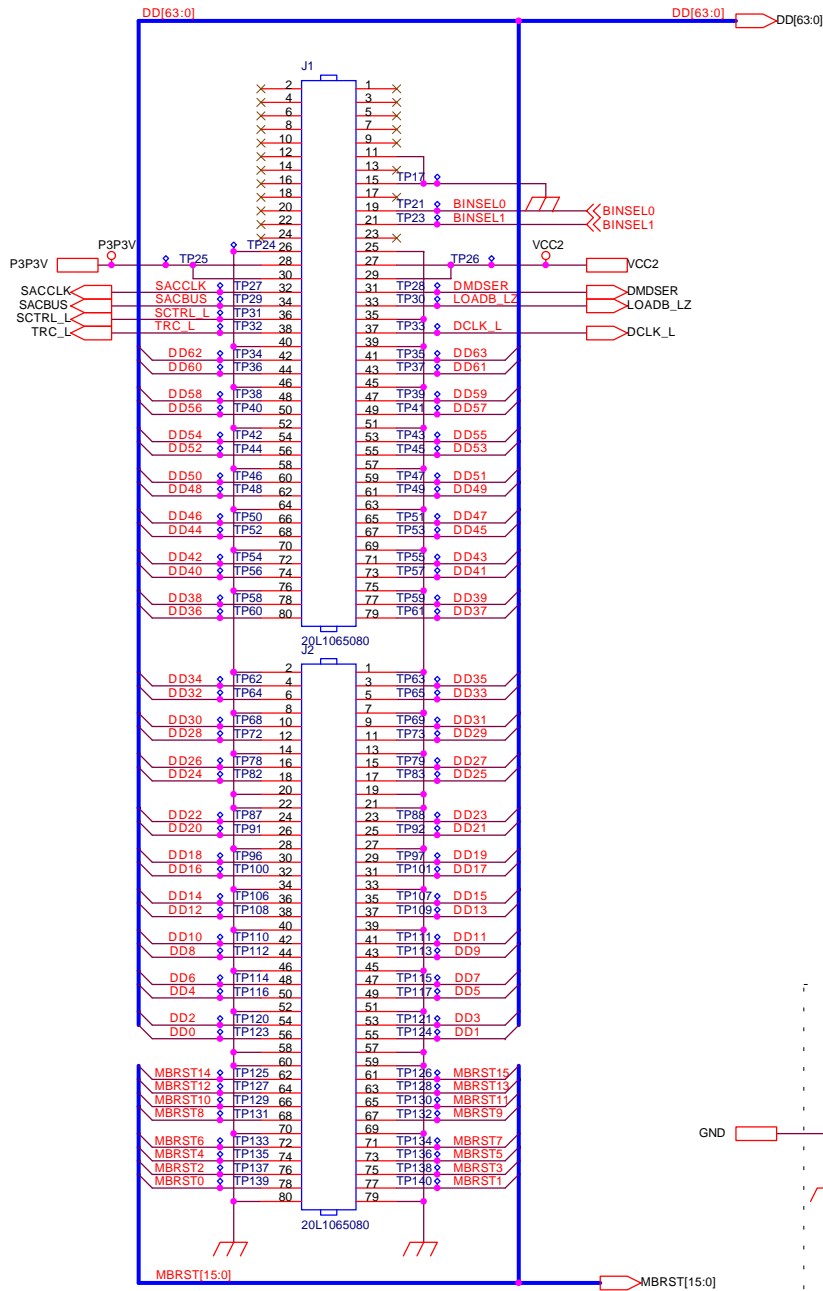


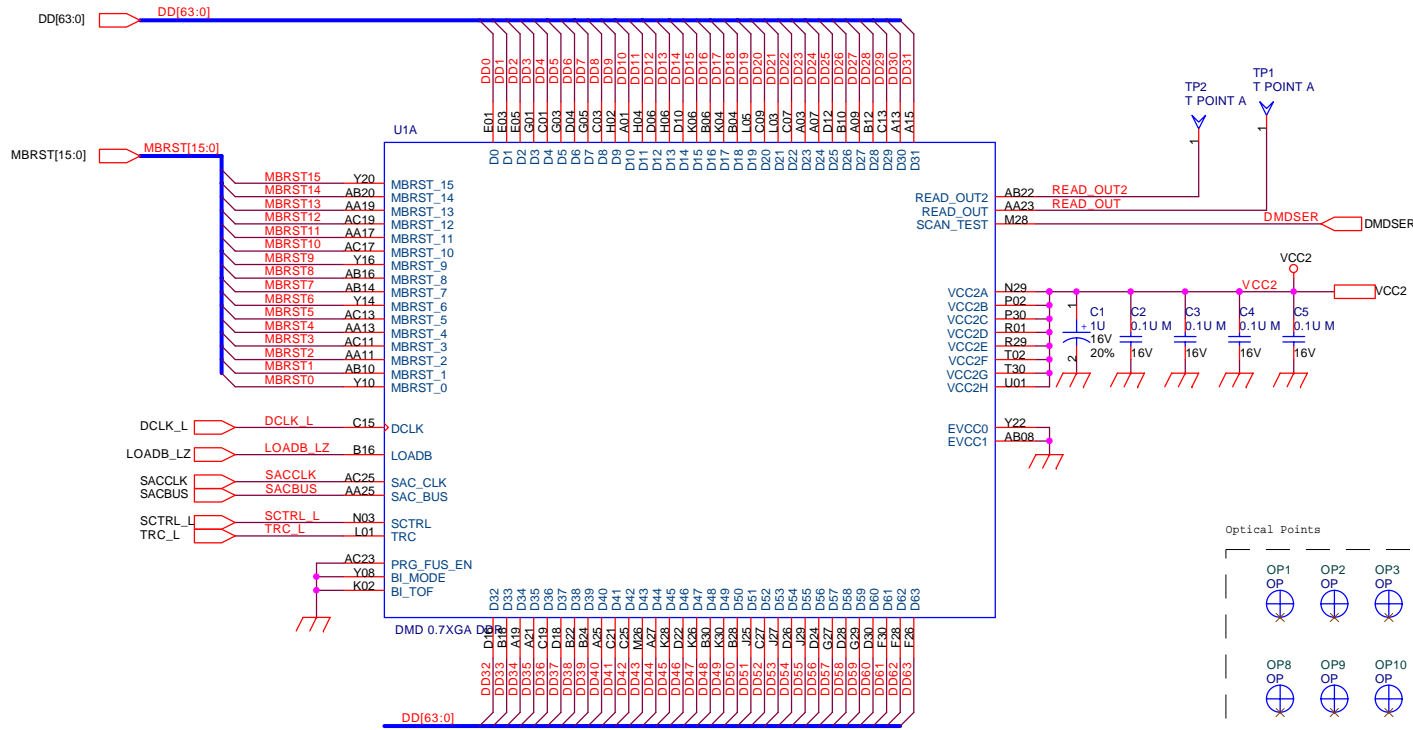
02_FAN



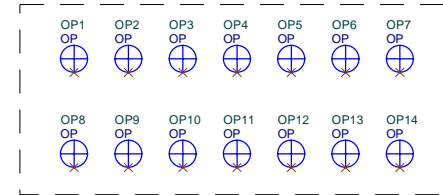




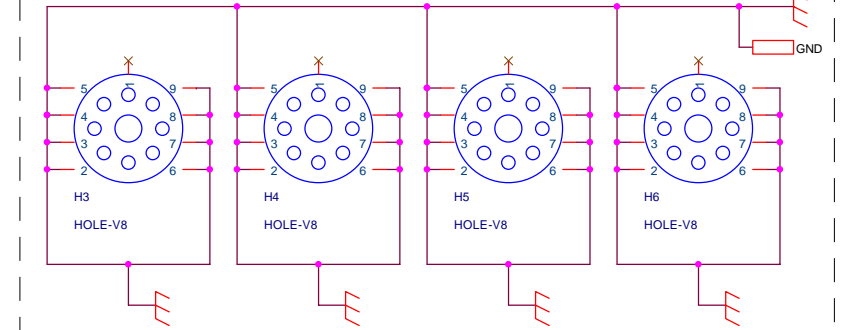


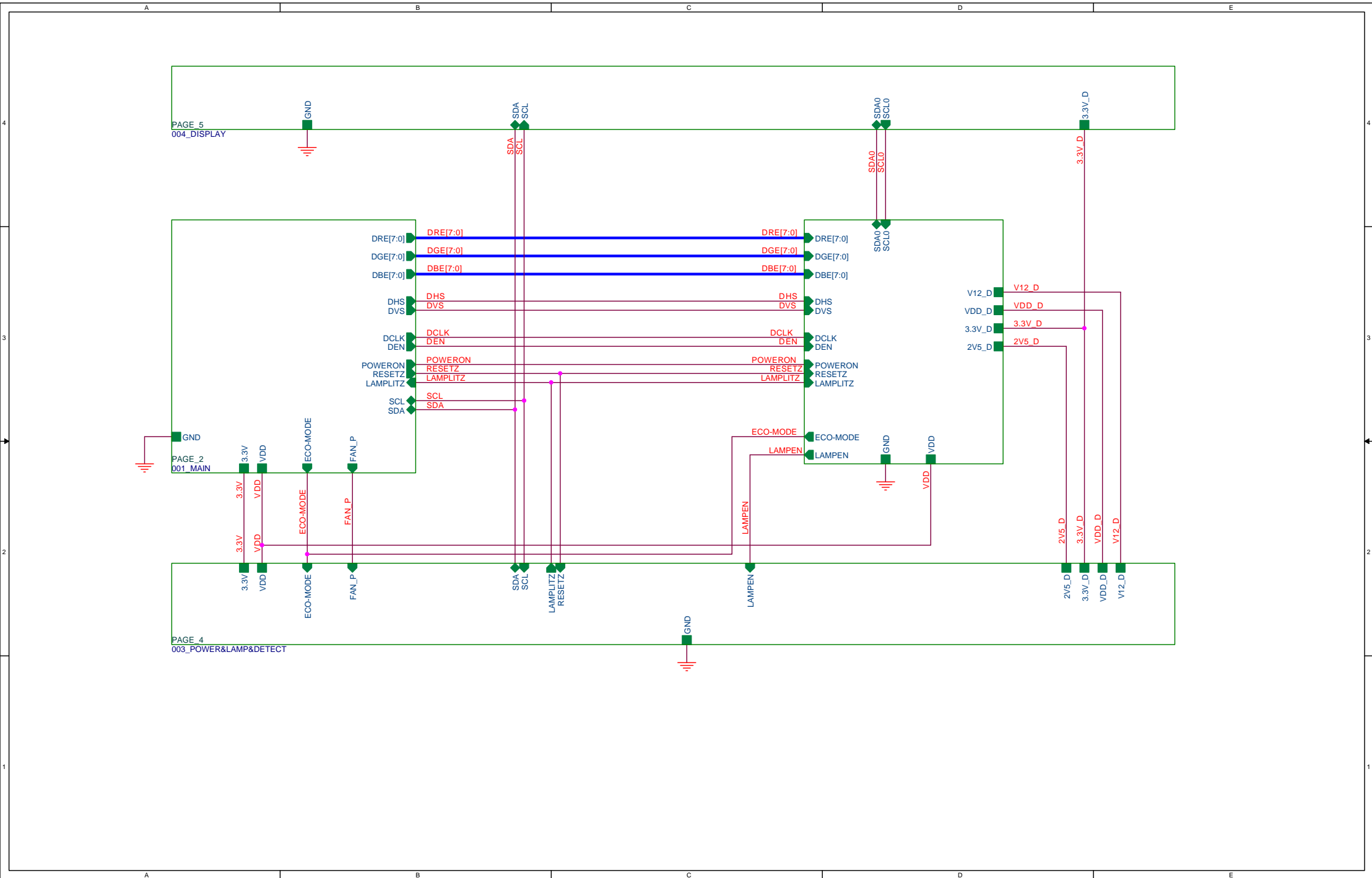


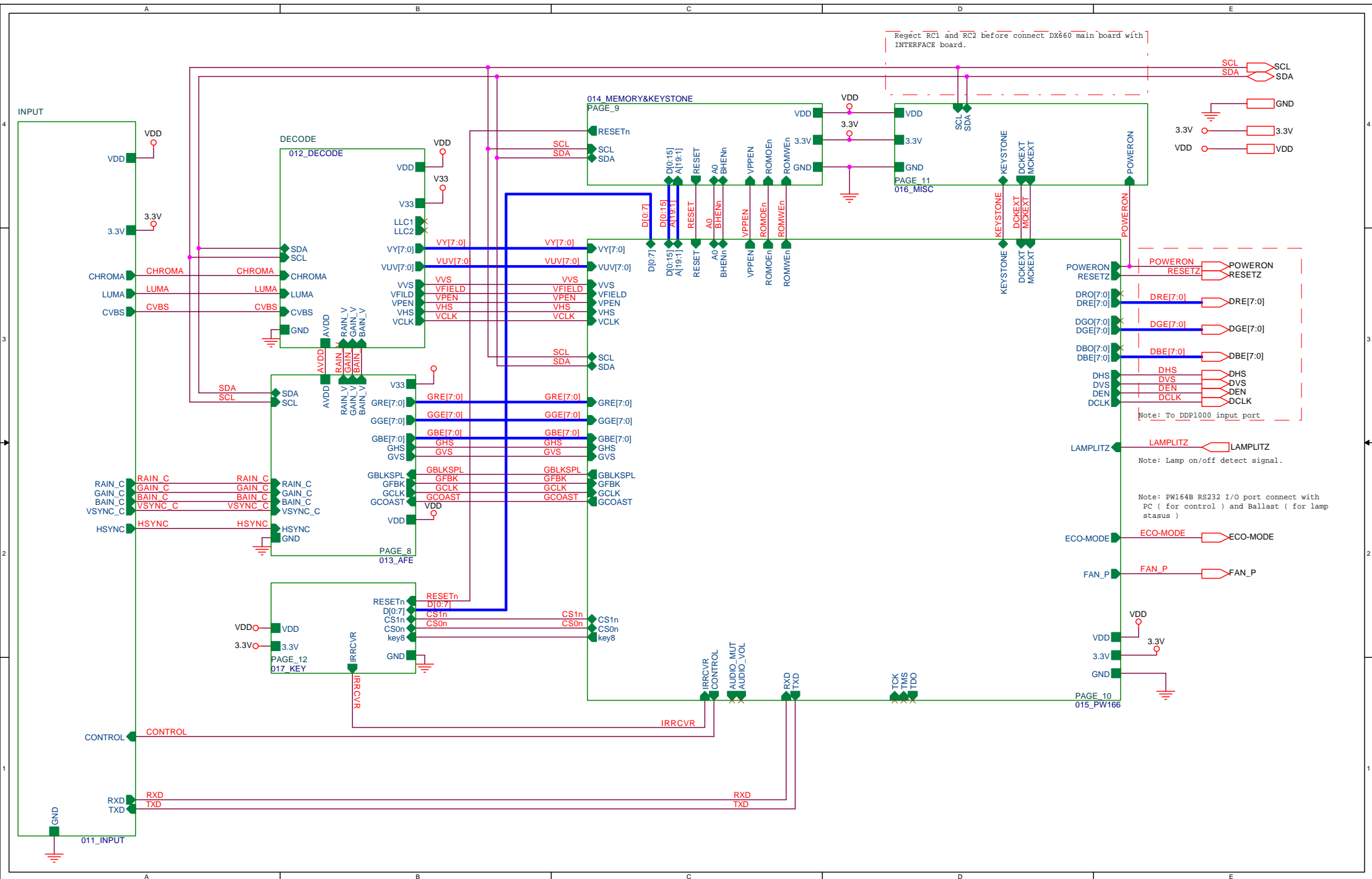
Optical Points

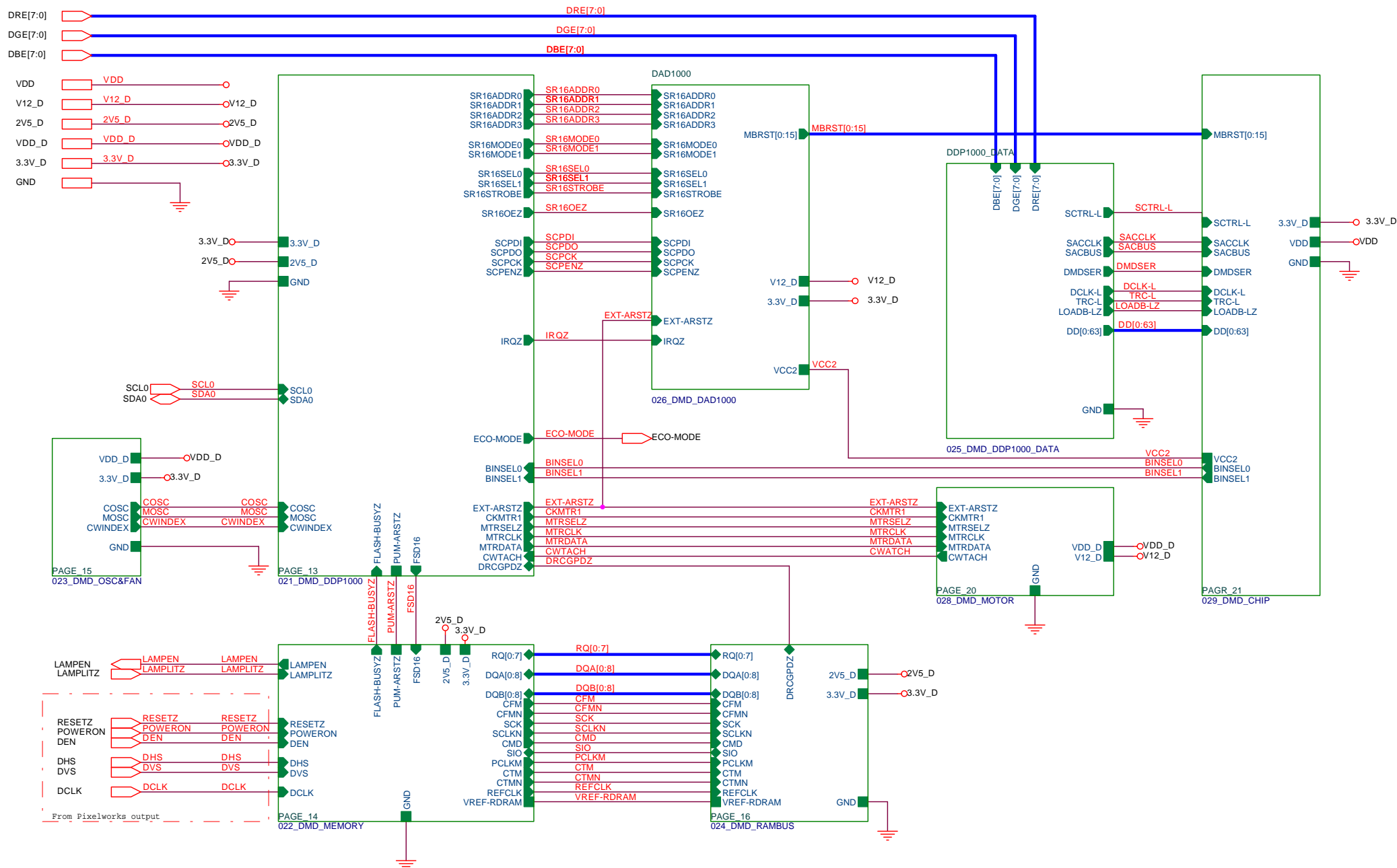


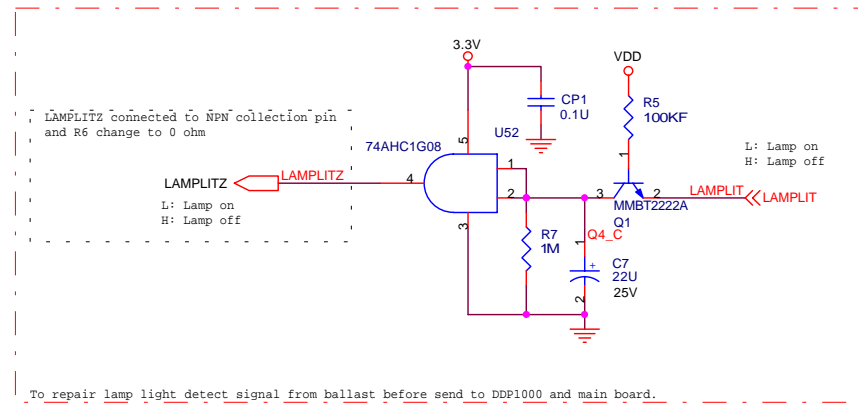
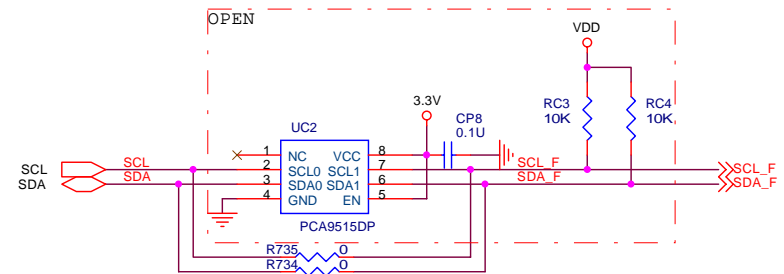
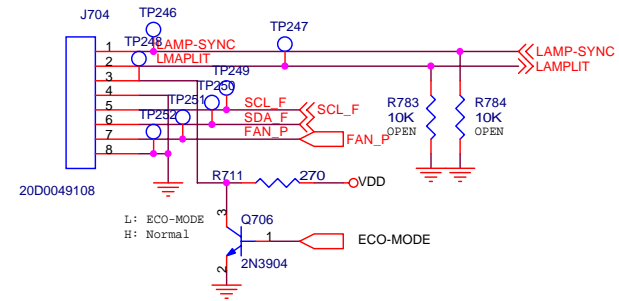
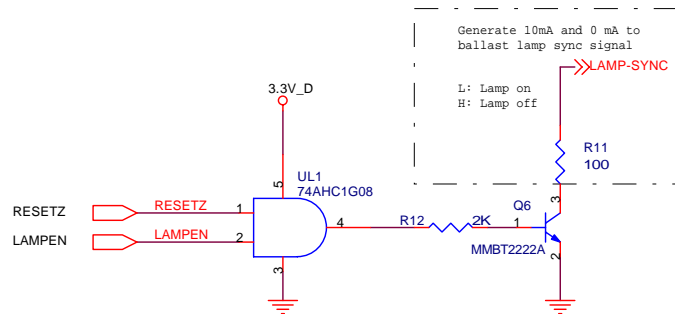
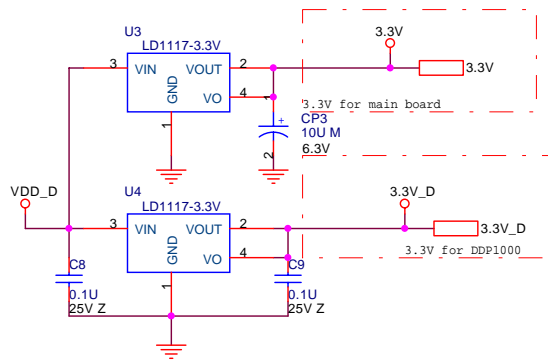
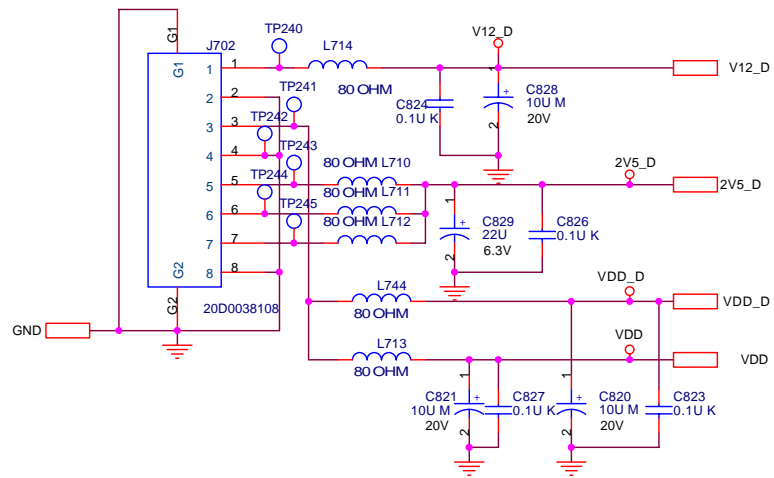
Screw Holes

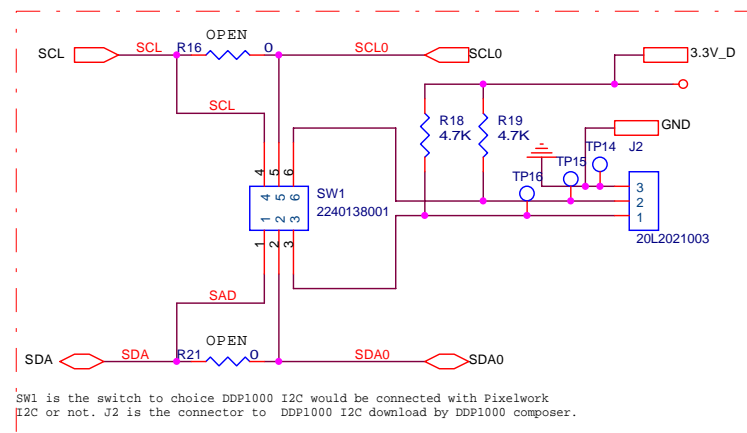


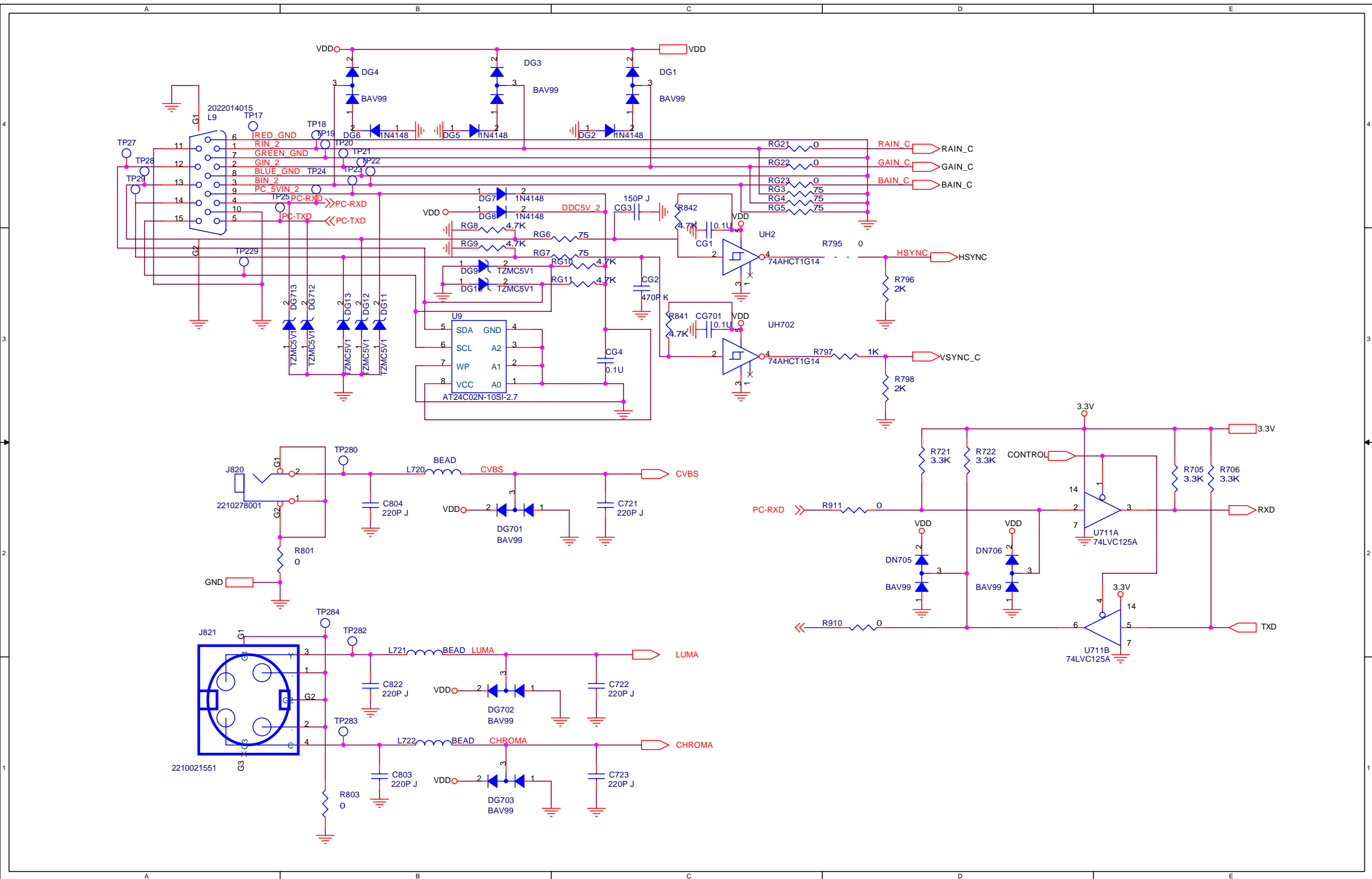


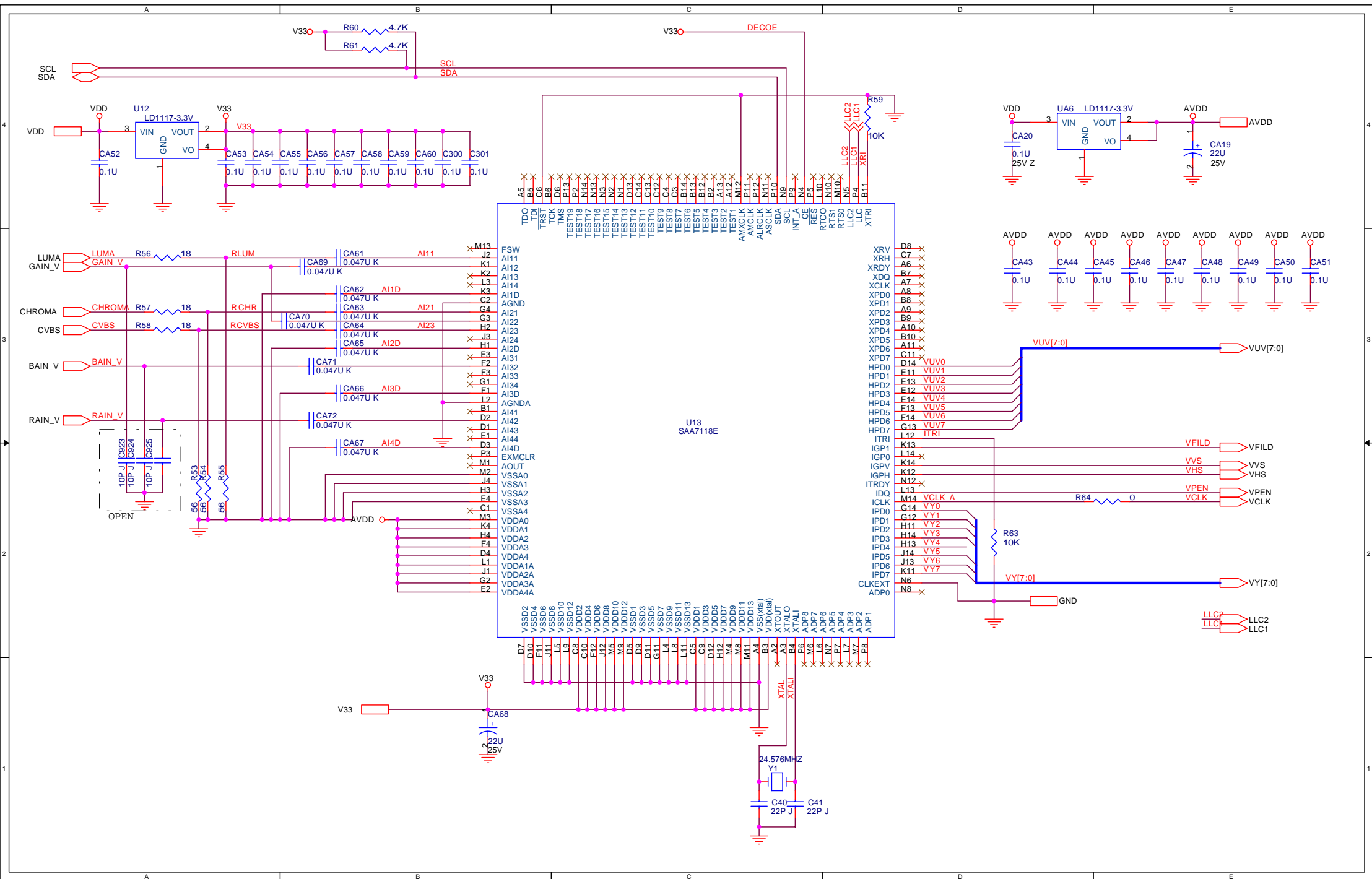


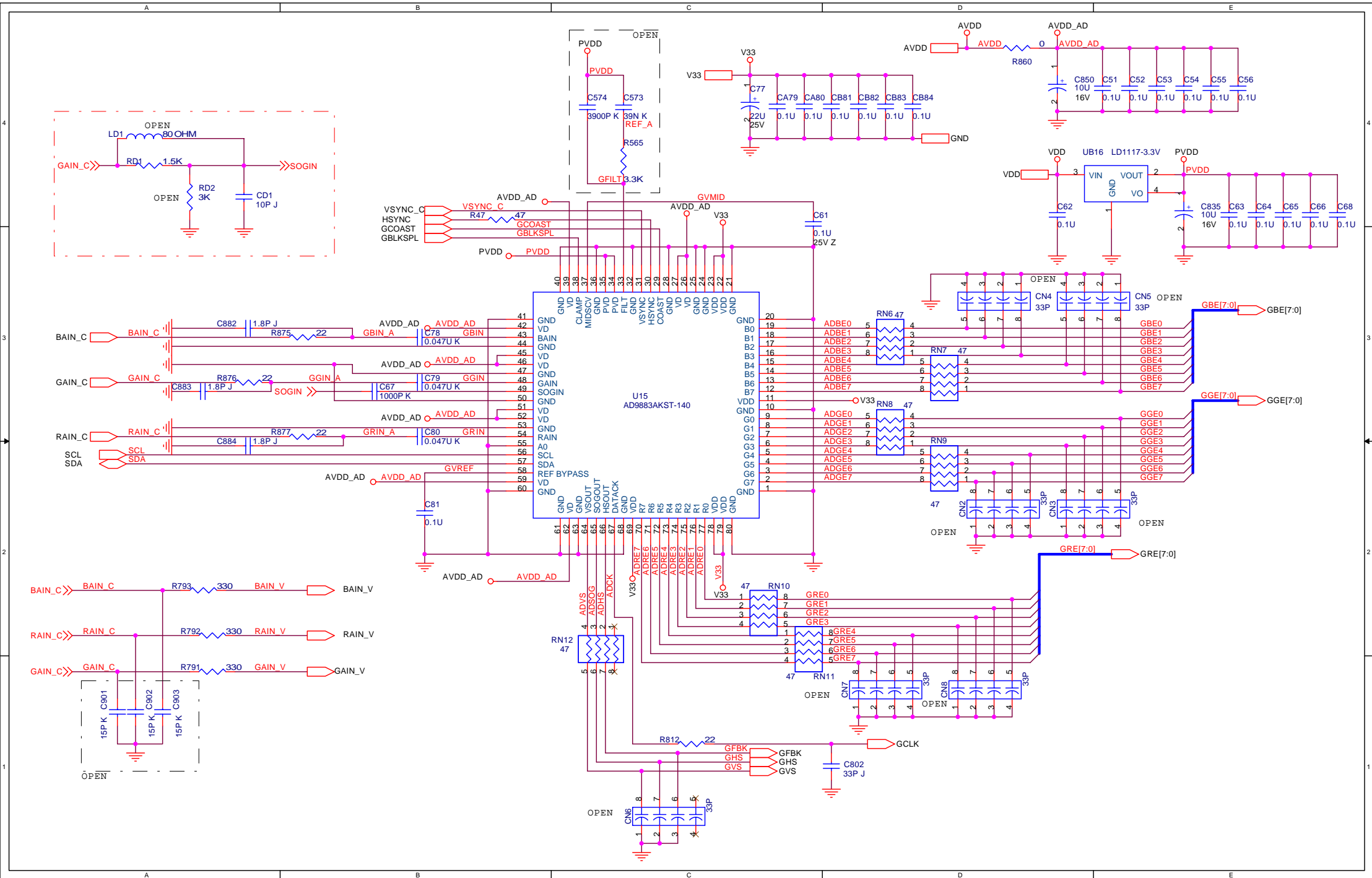


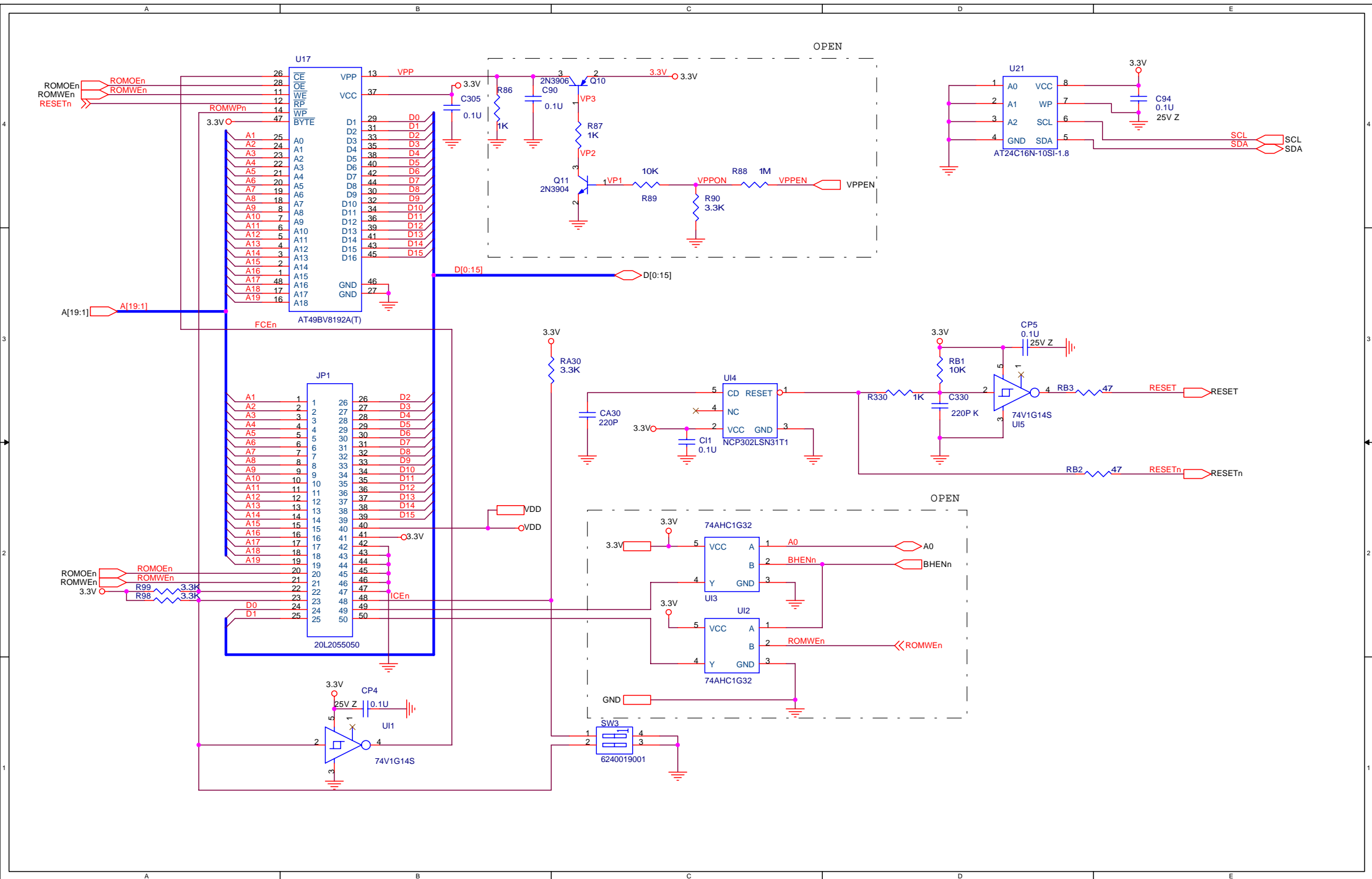


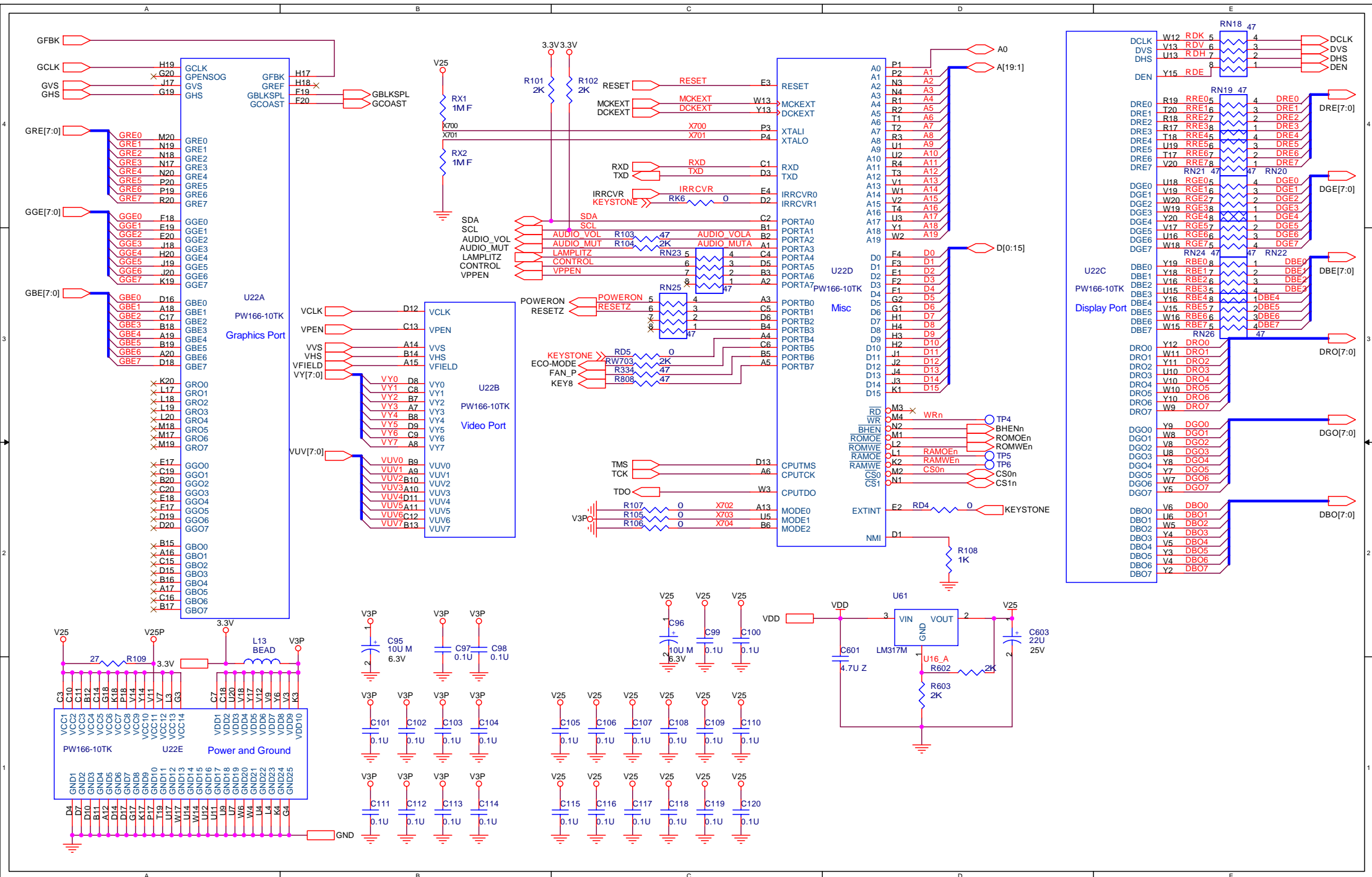


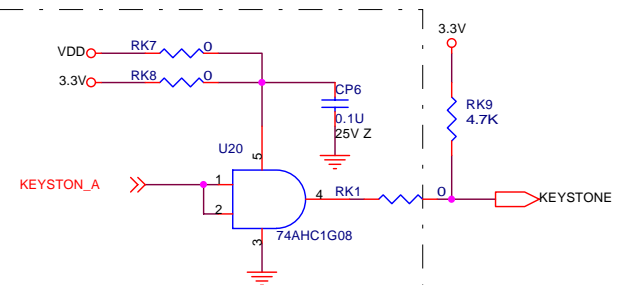
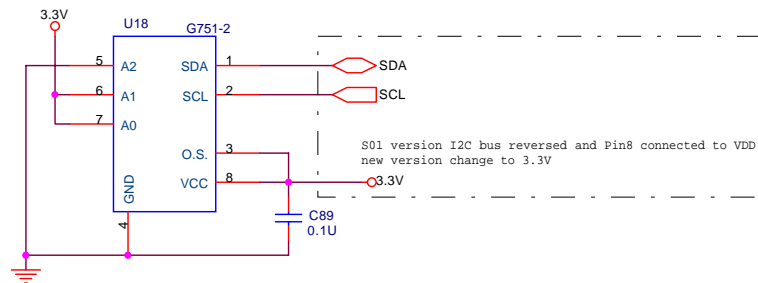
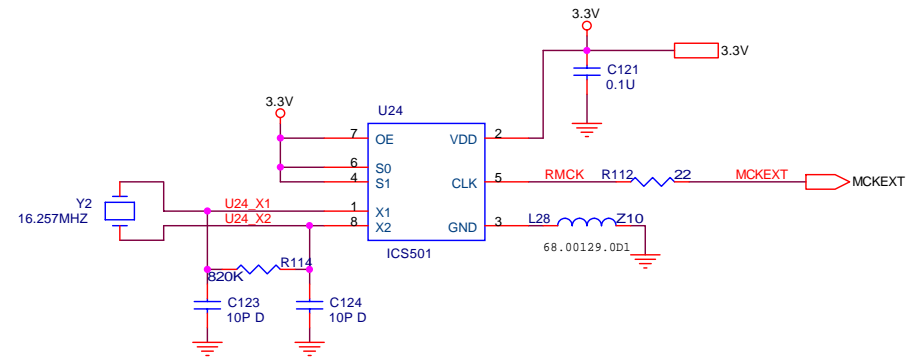






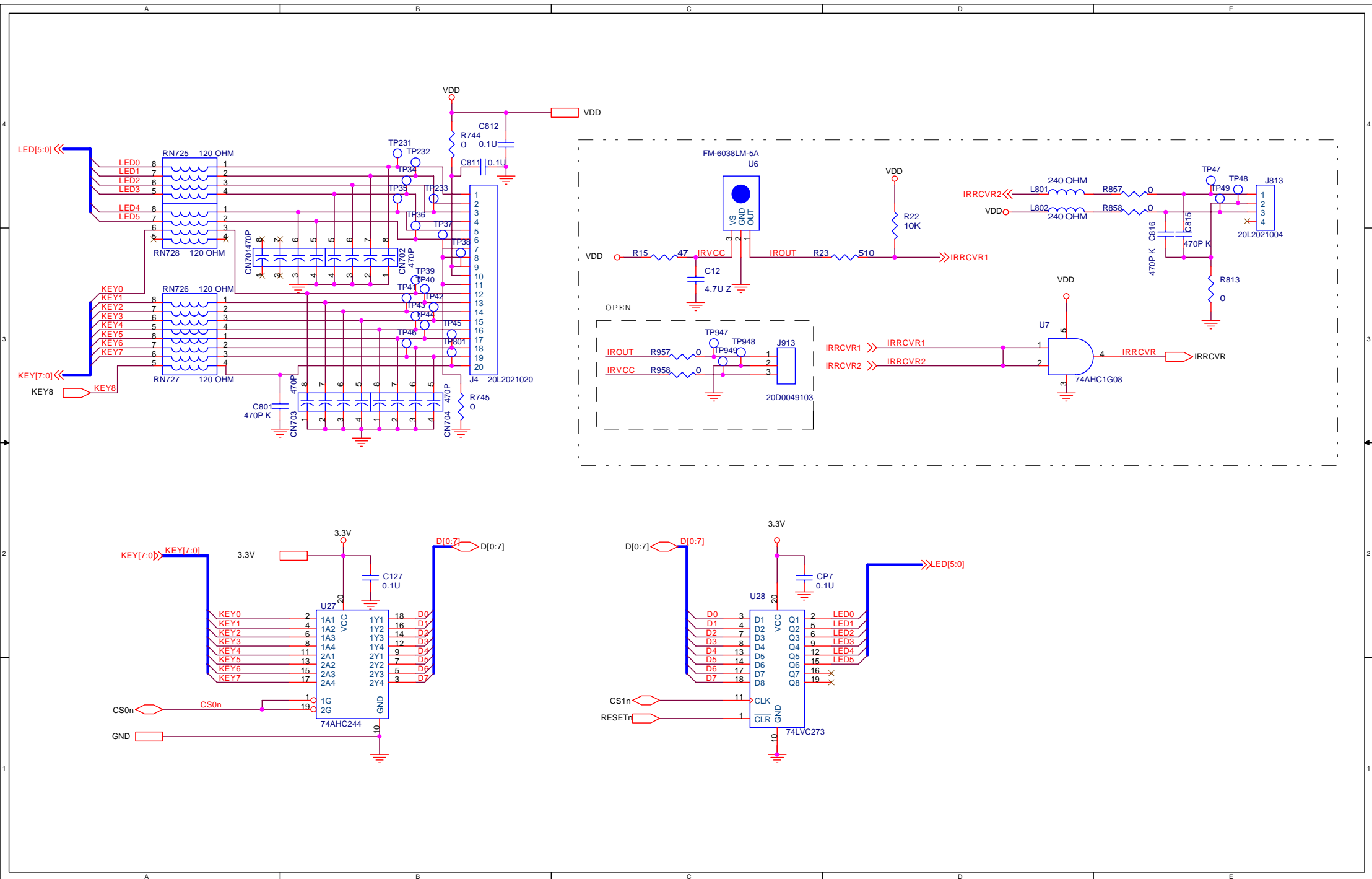


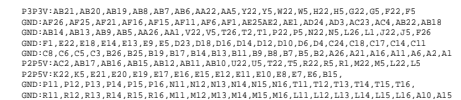


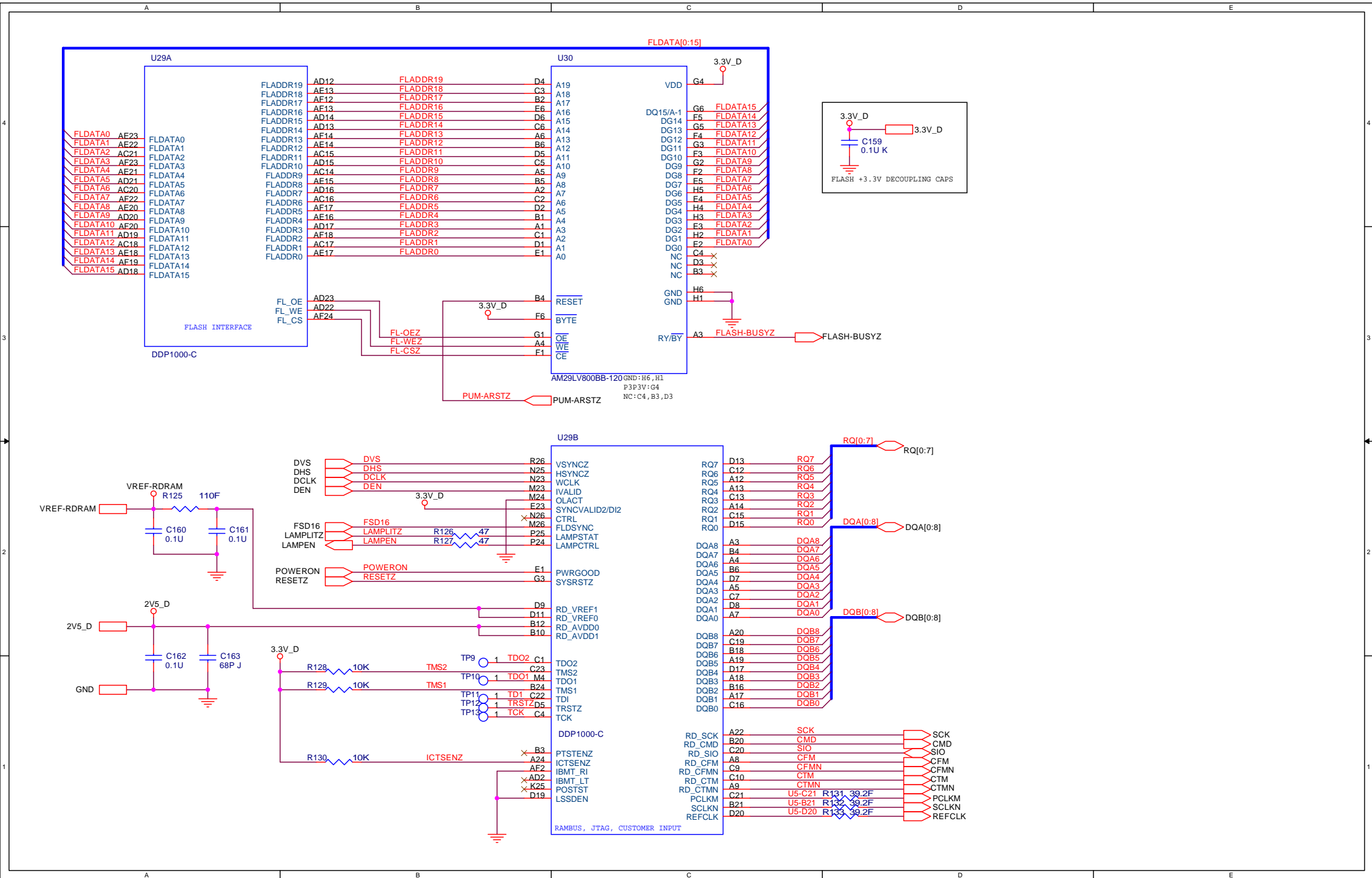


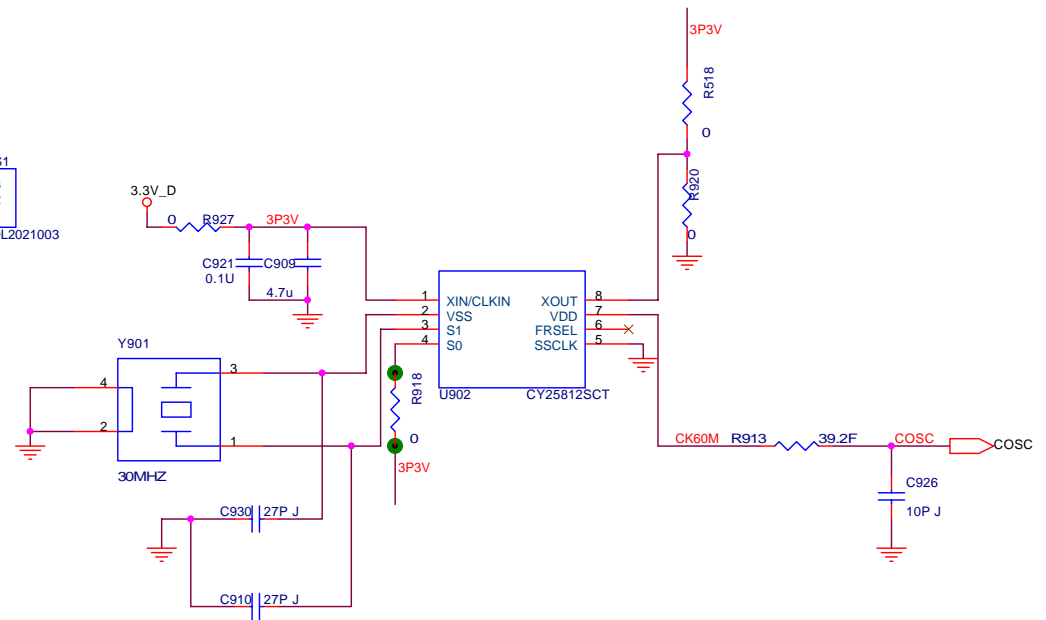
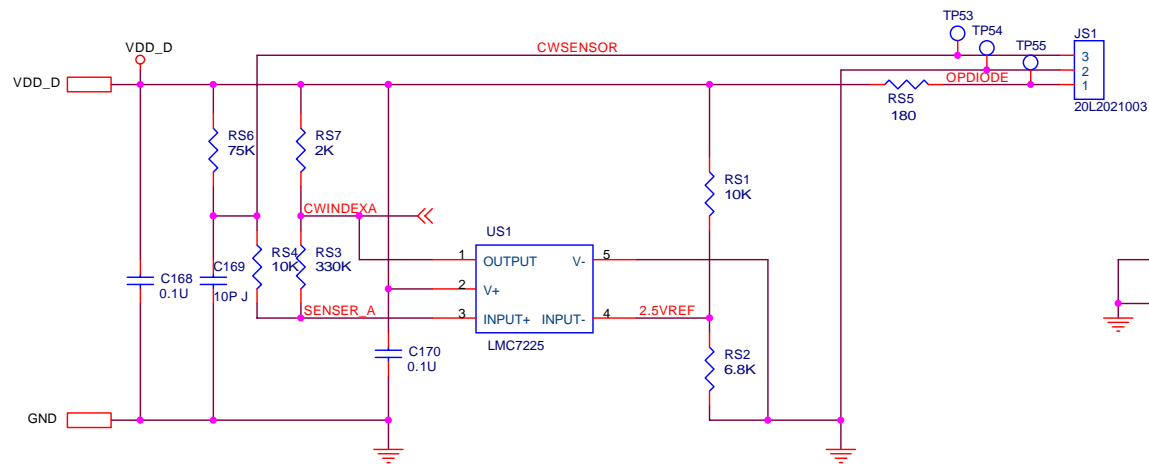
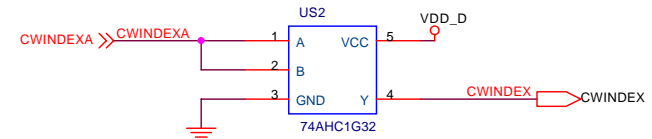
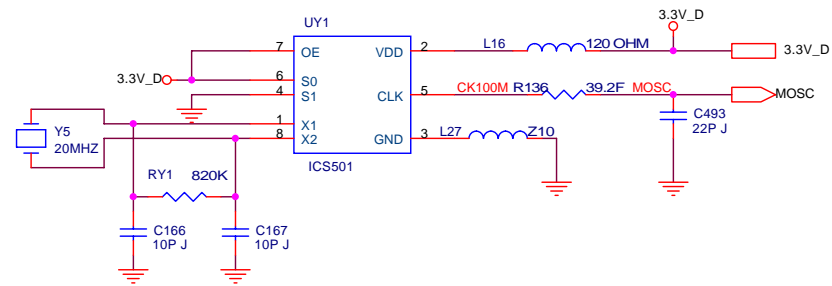
ADI: RK1, RK2, RK3, RK4, R92 OPEN
MEMSIC: R93, C91, R94, R95, R92, RK1, OPEN; RK2, RK3, RK4 0ohm

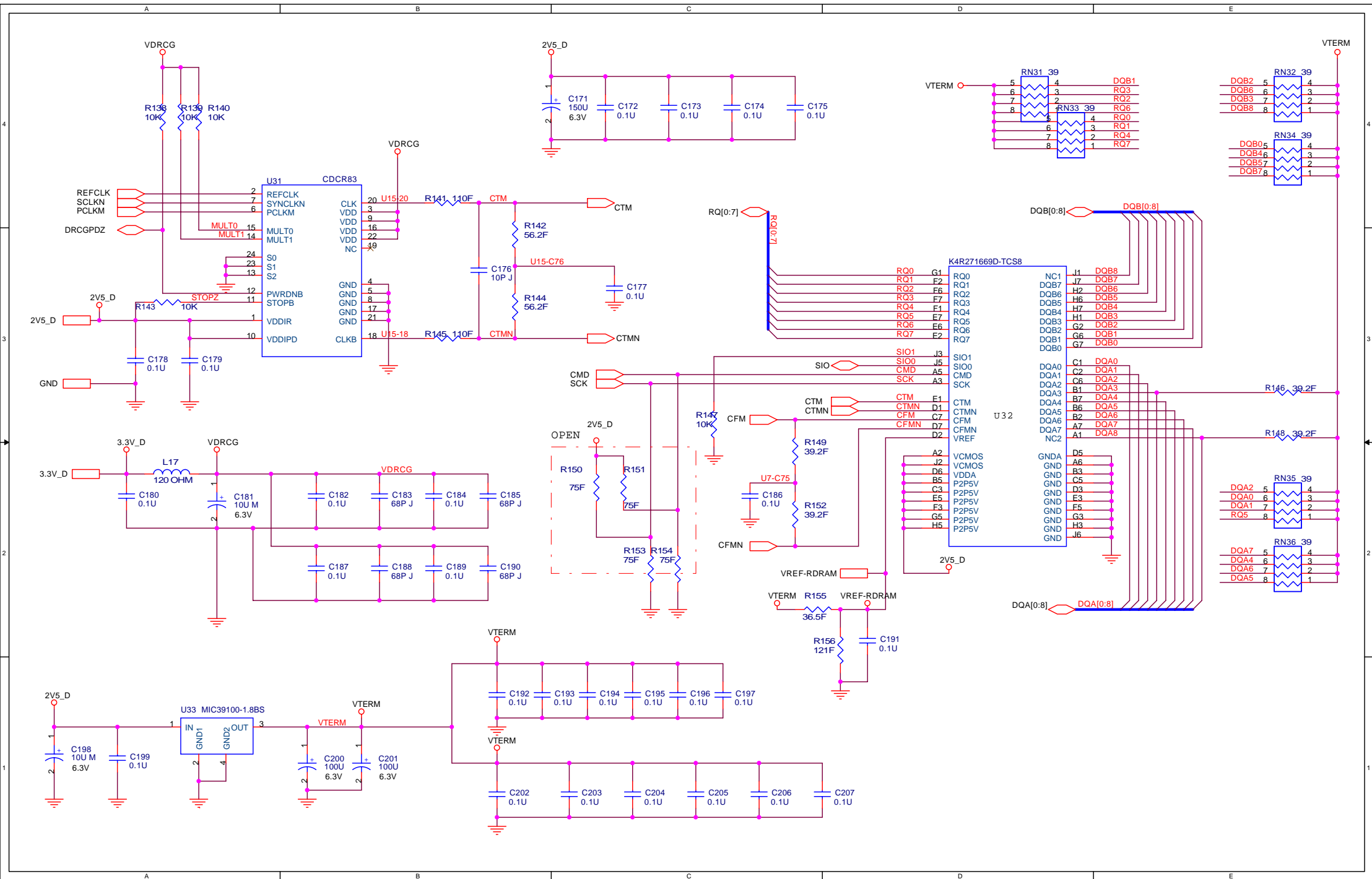
Note: keystone function IC and thermal sensor IC, those two component should be placement as closed as possible.

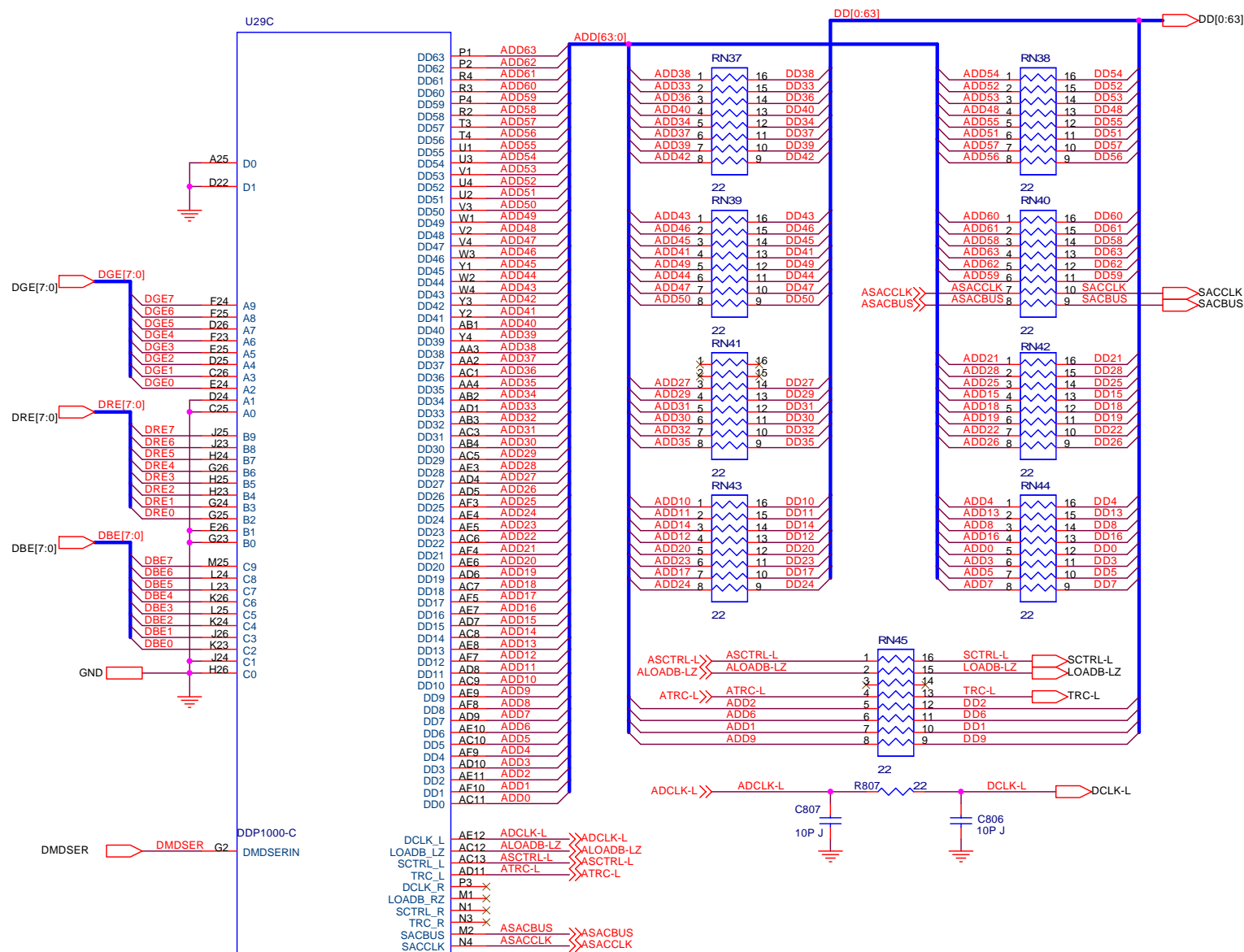


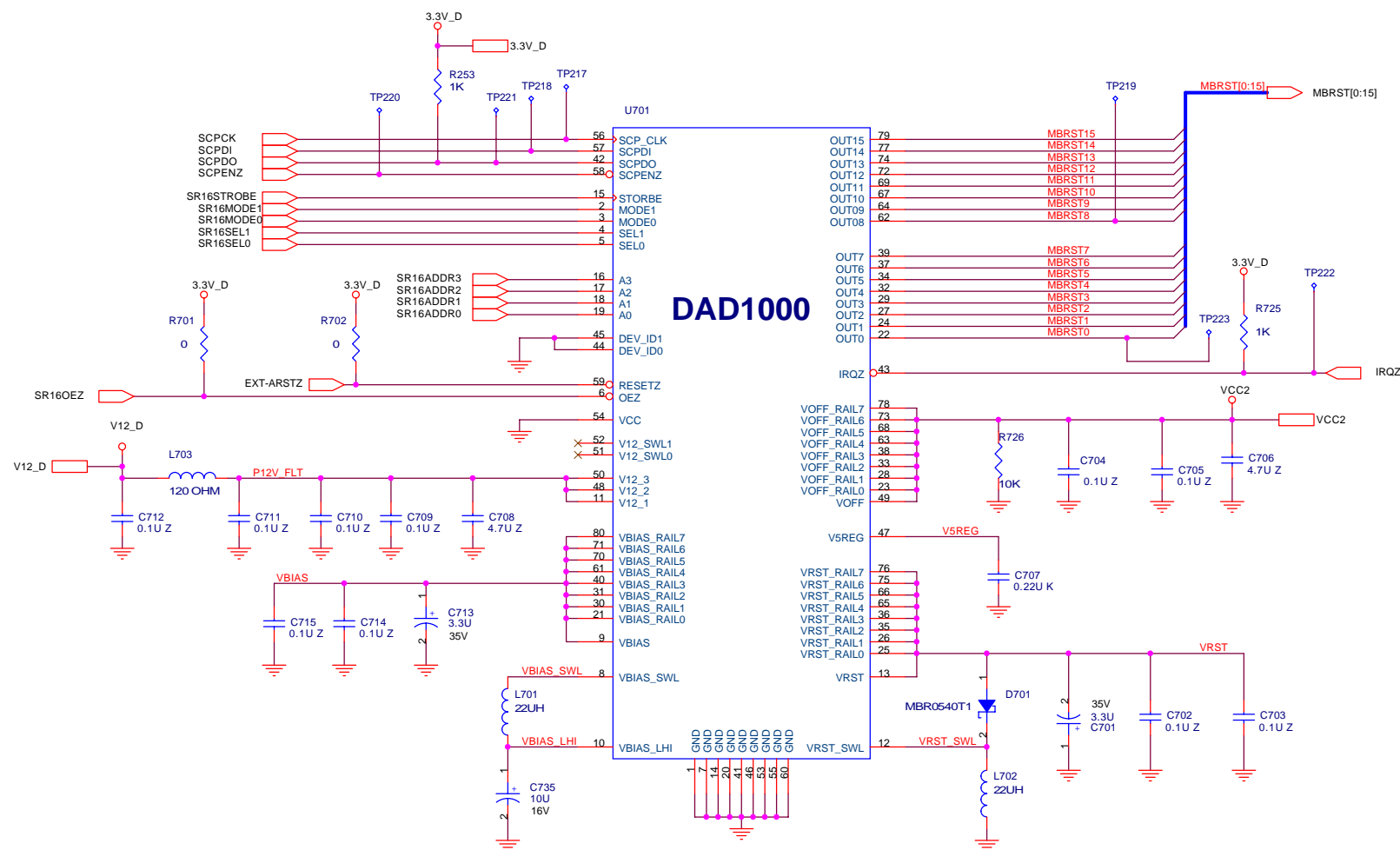


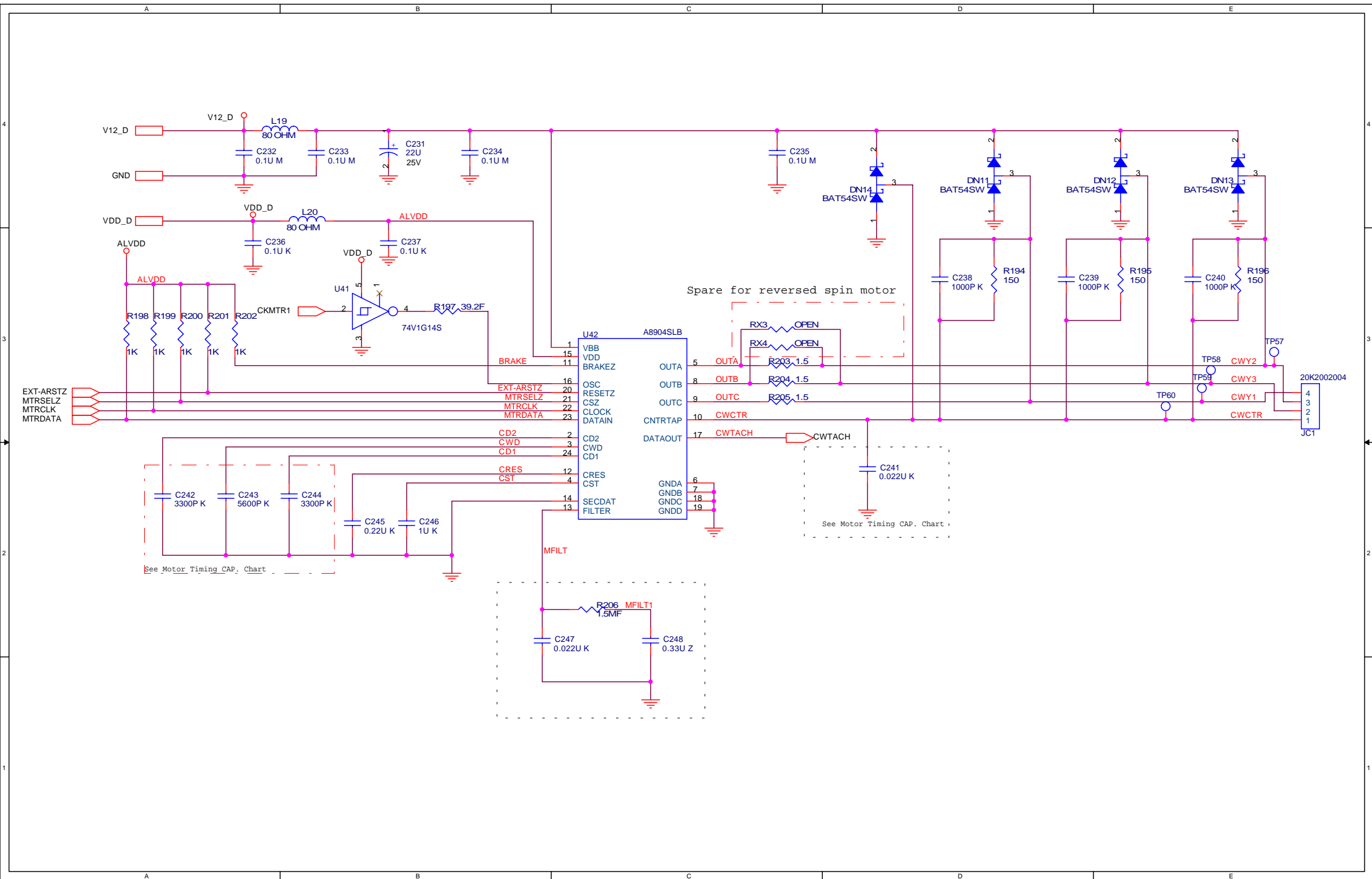


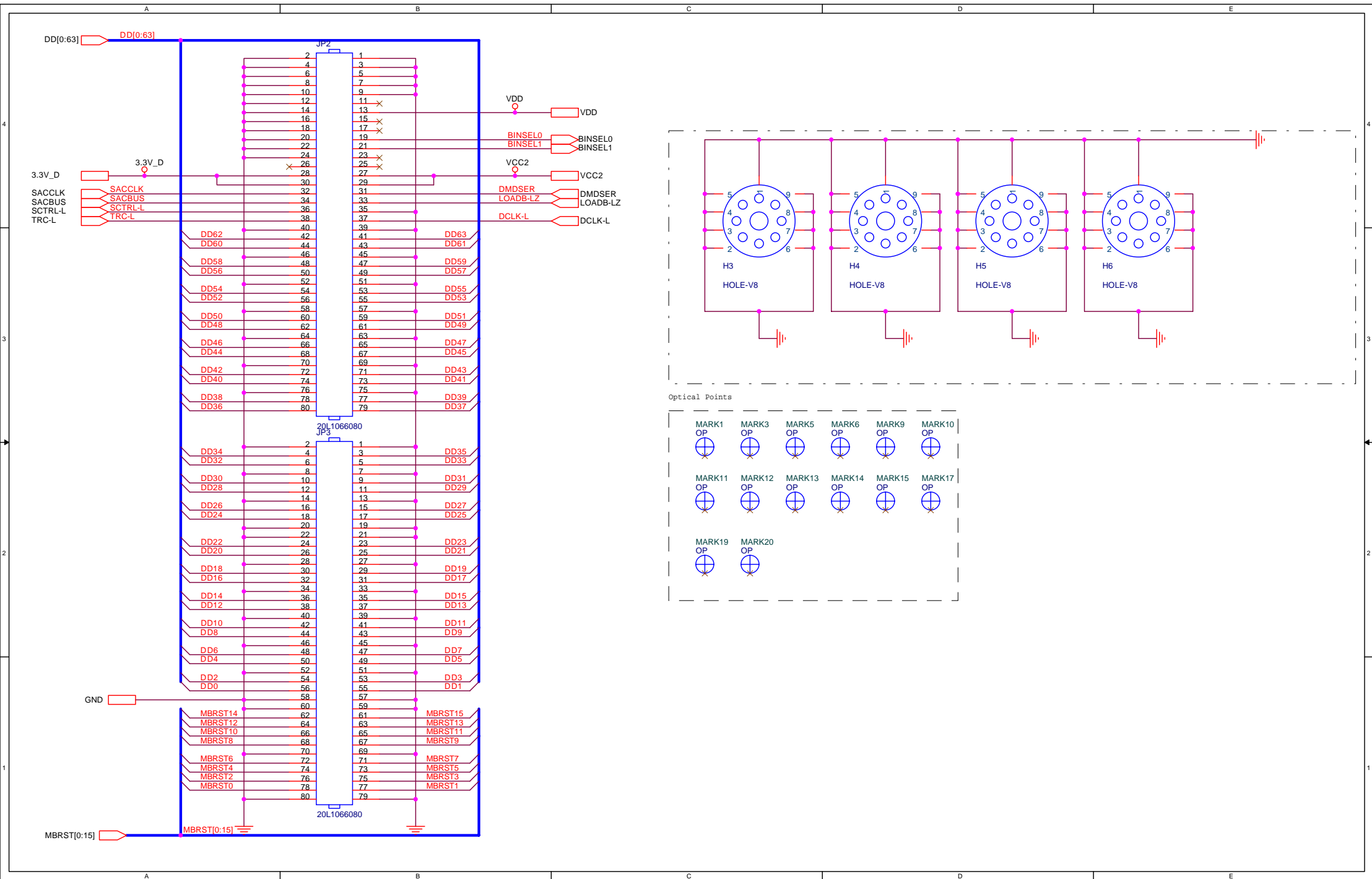


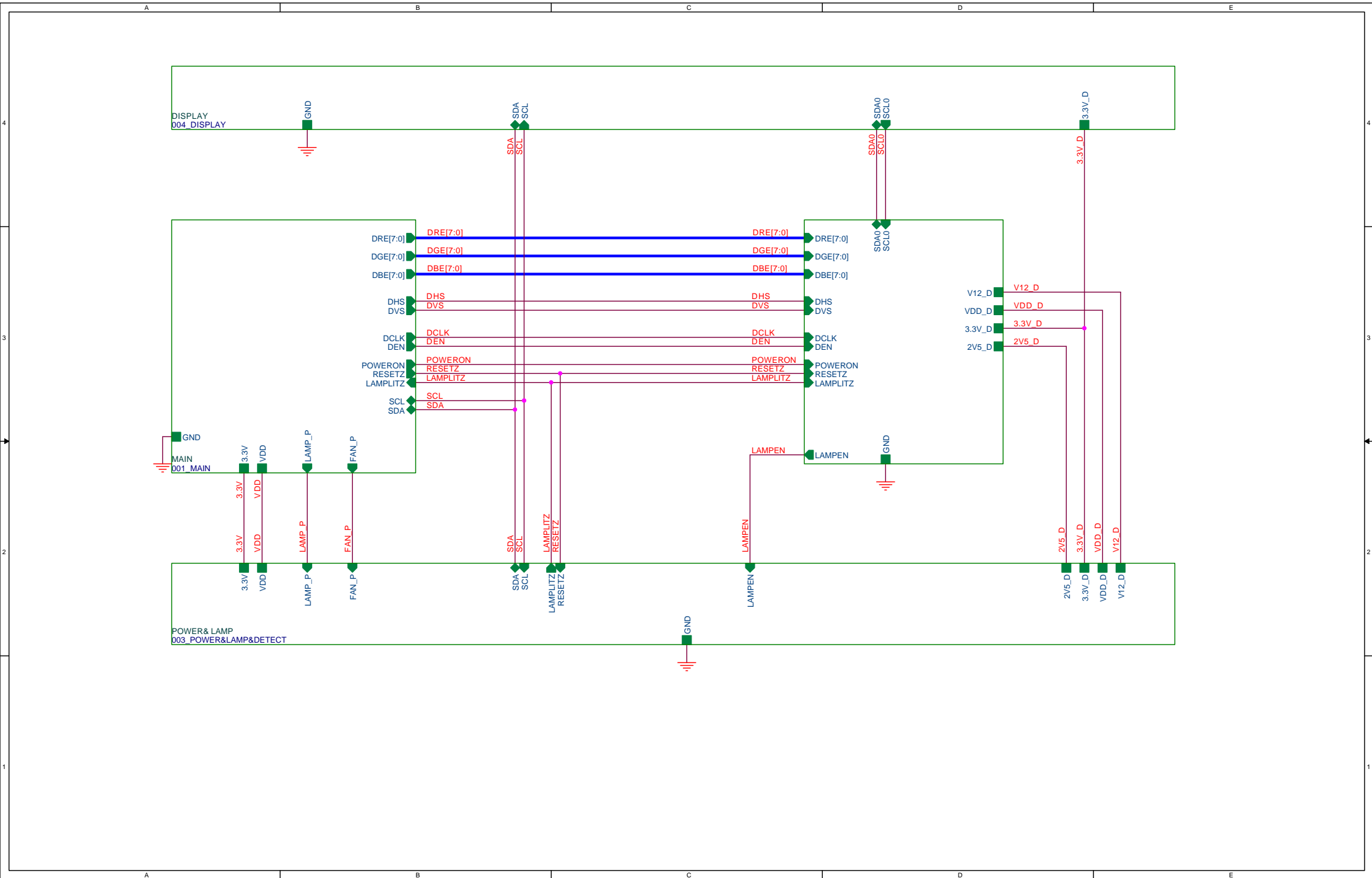


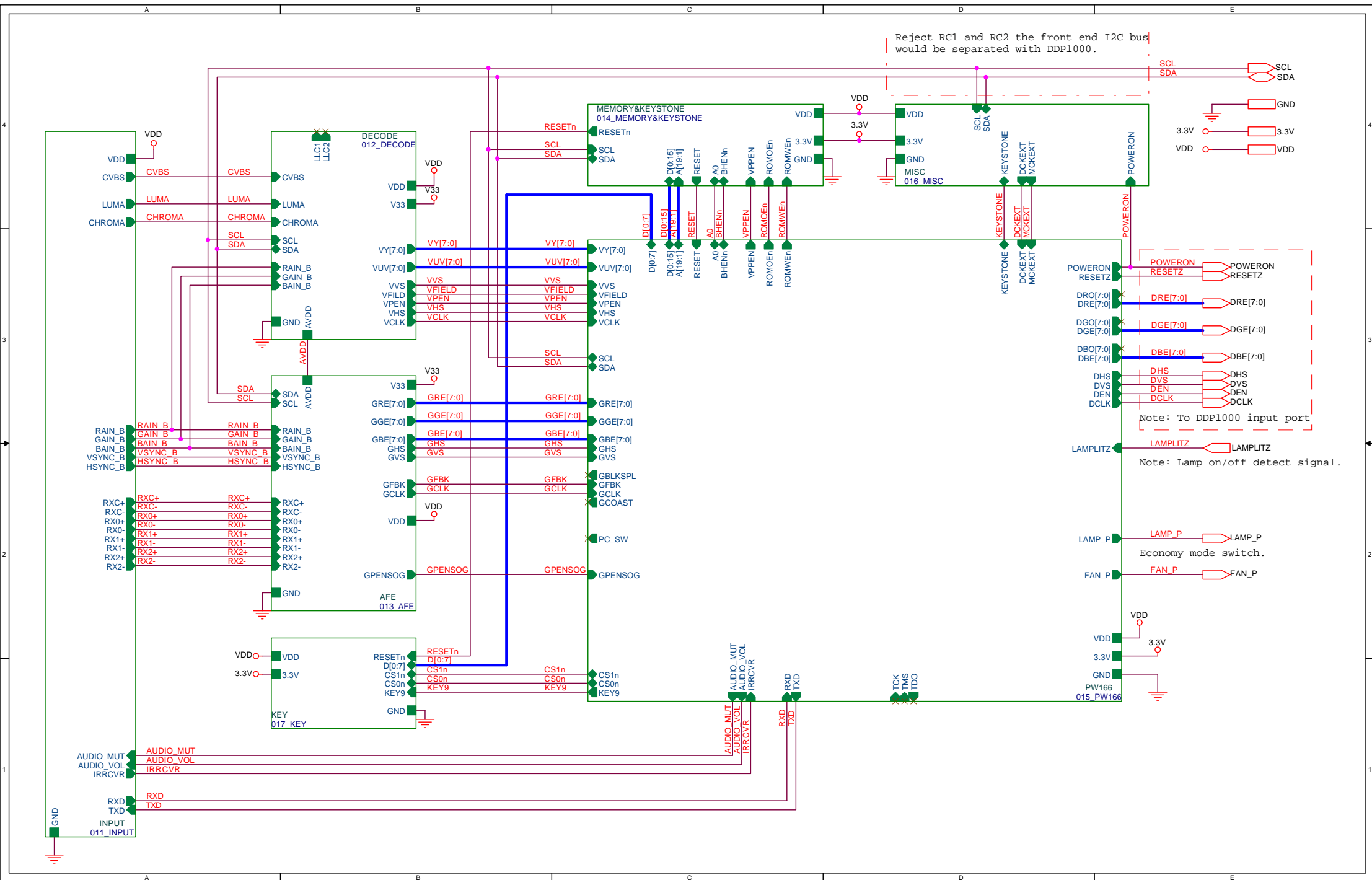


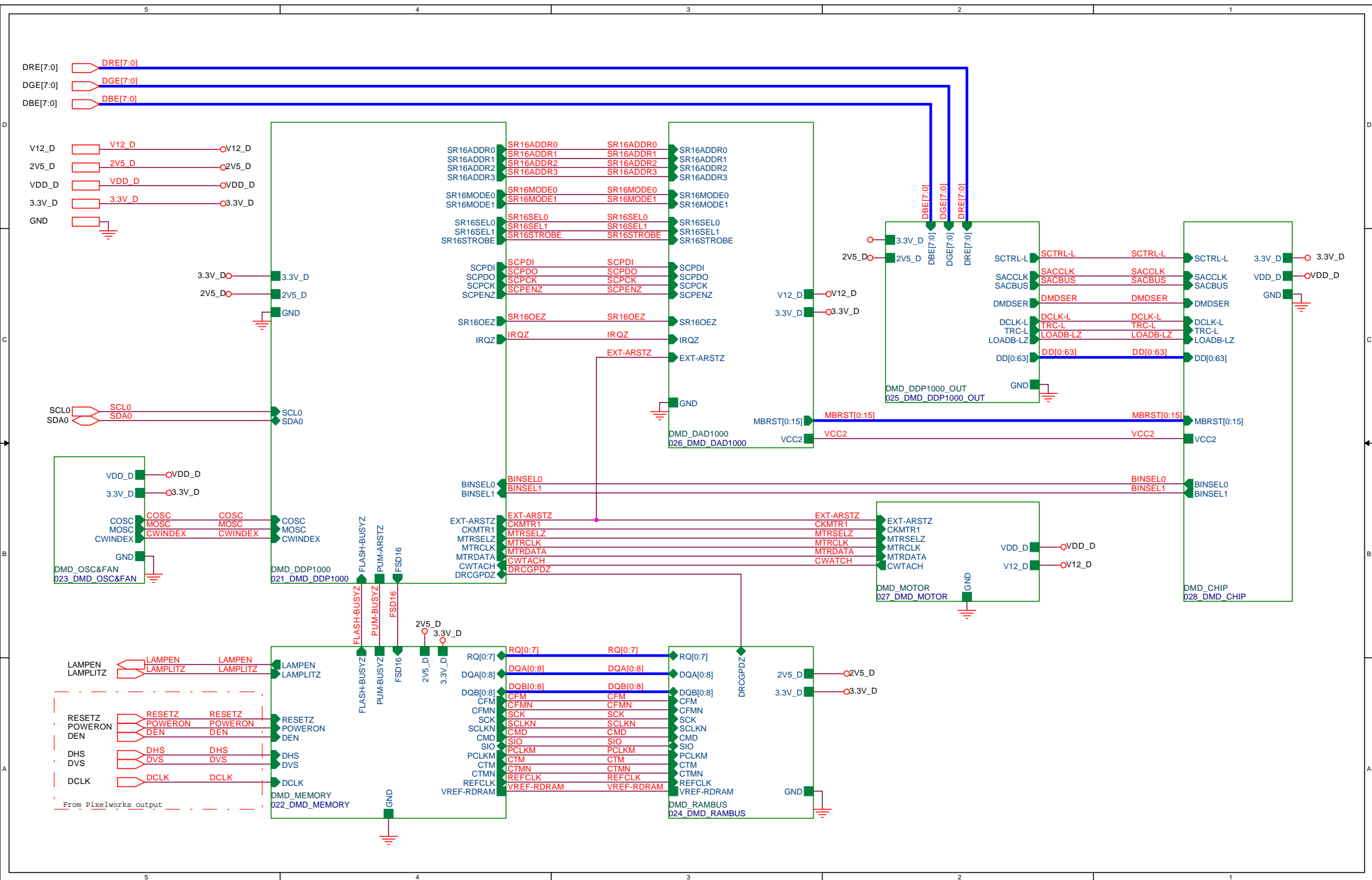


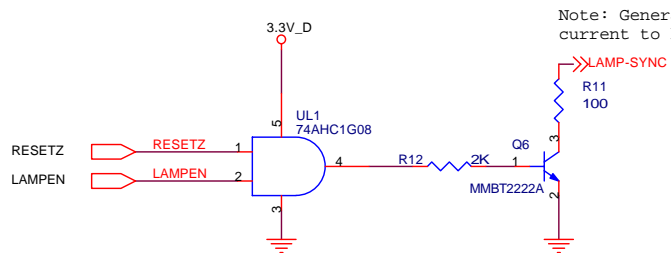
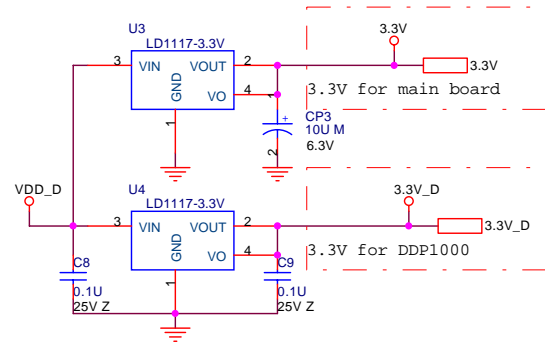
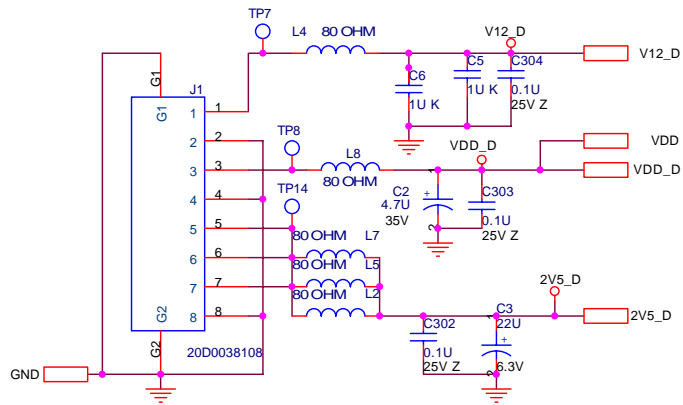
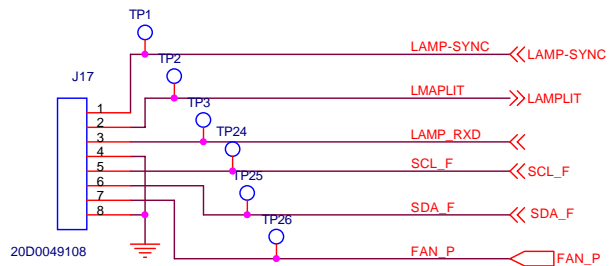




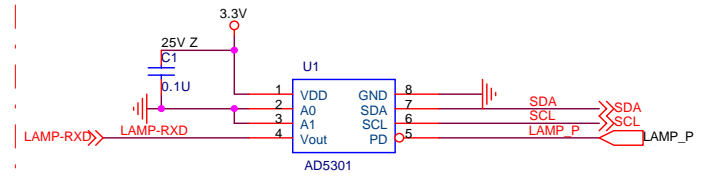




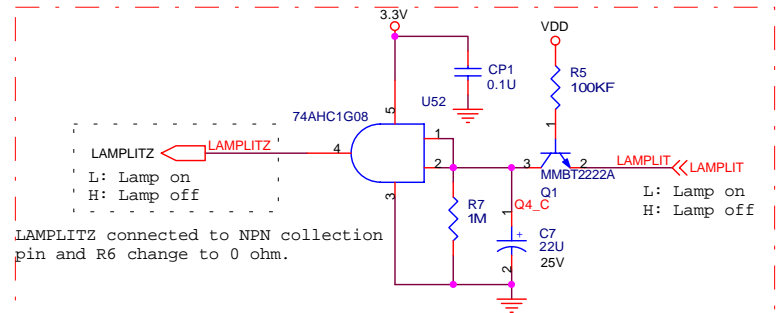




Note: Generate 10mA and 0 mA current to ballast.

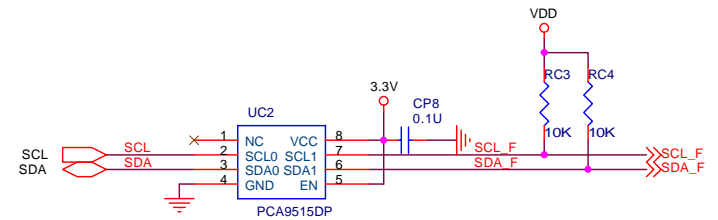


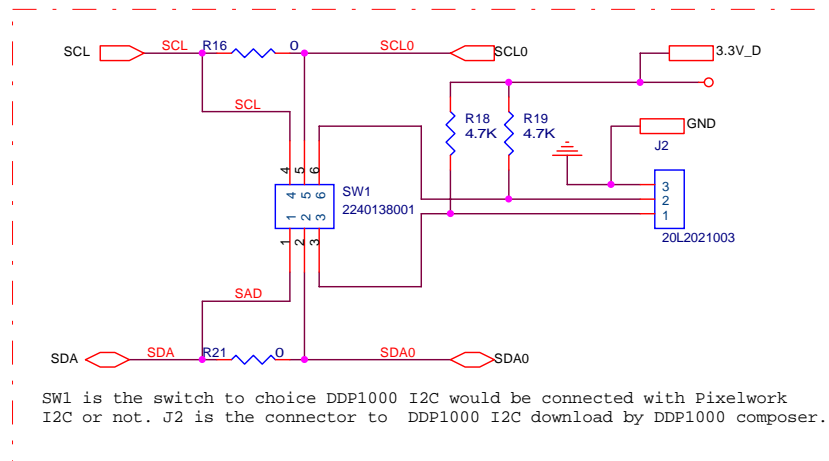
Ballast power output adjust Vout=0V ballast output=212.5W
Vout=3.18V ballast output=187.5W and net "PC_BAL_SW" is
high ballast output =250W.

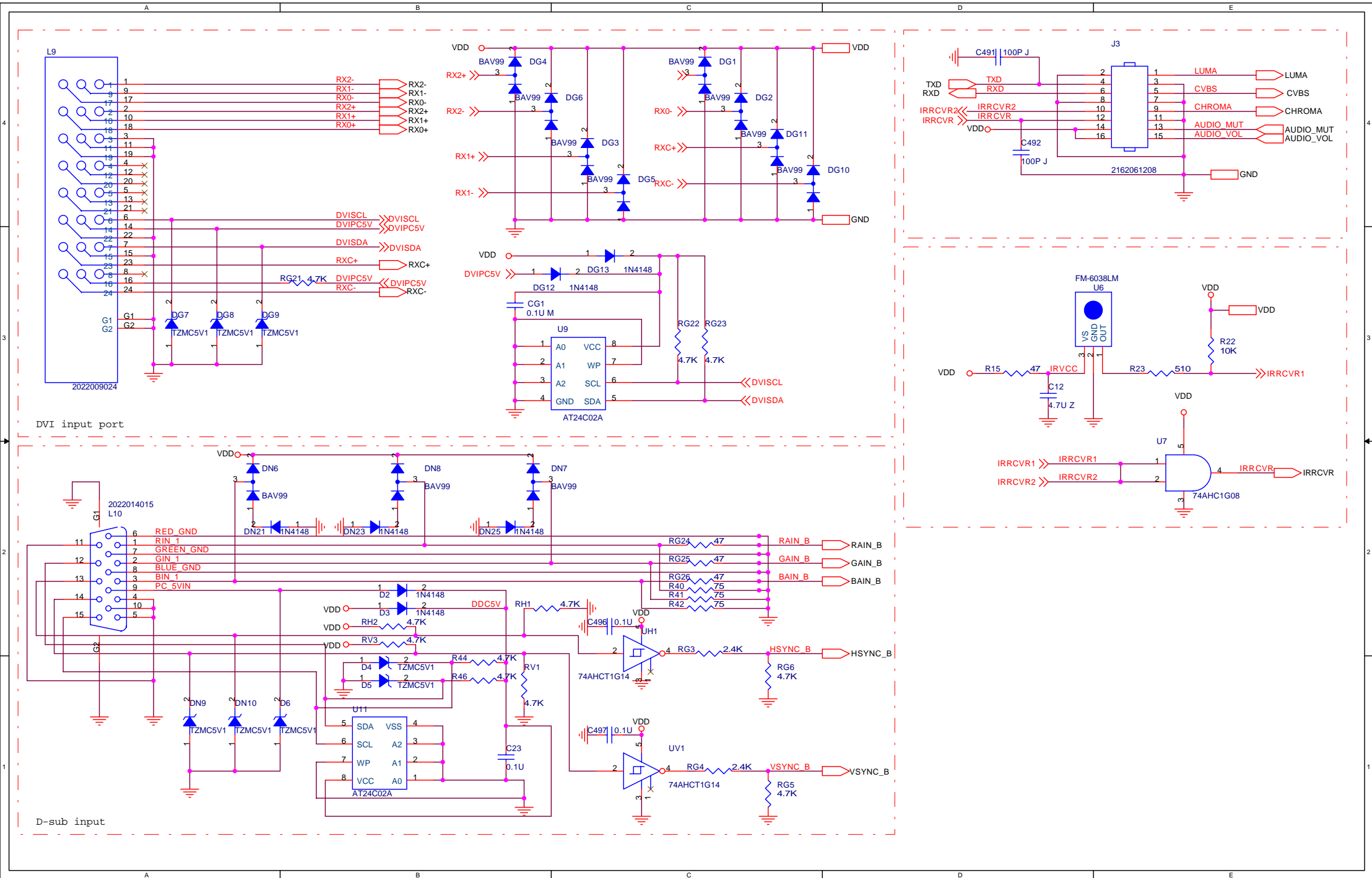


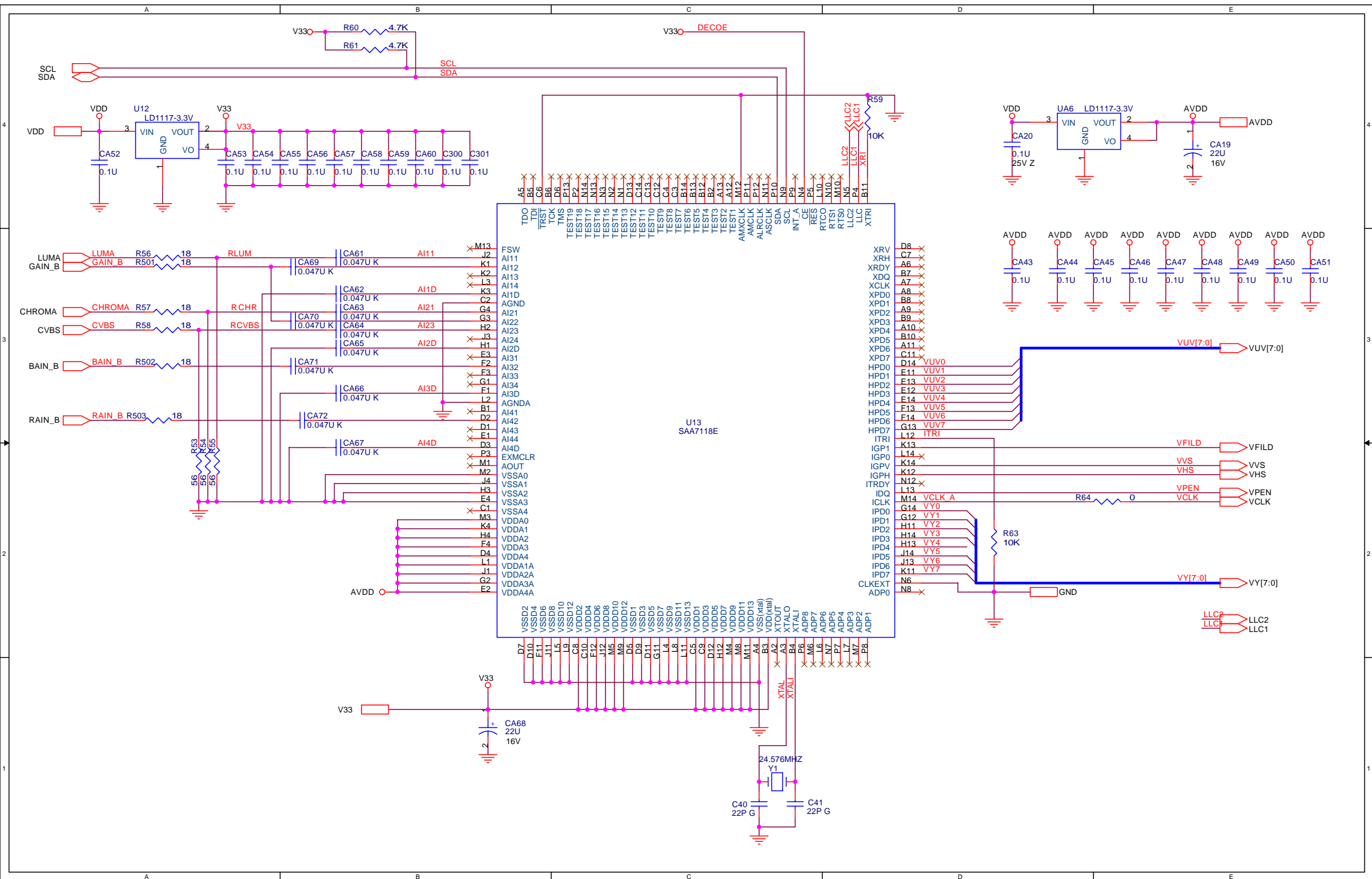
LAMPLITZ connected to NPN collection pin and R6 change to 0 ohm.

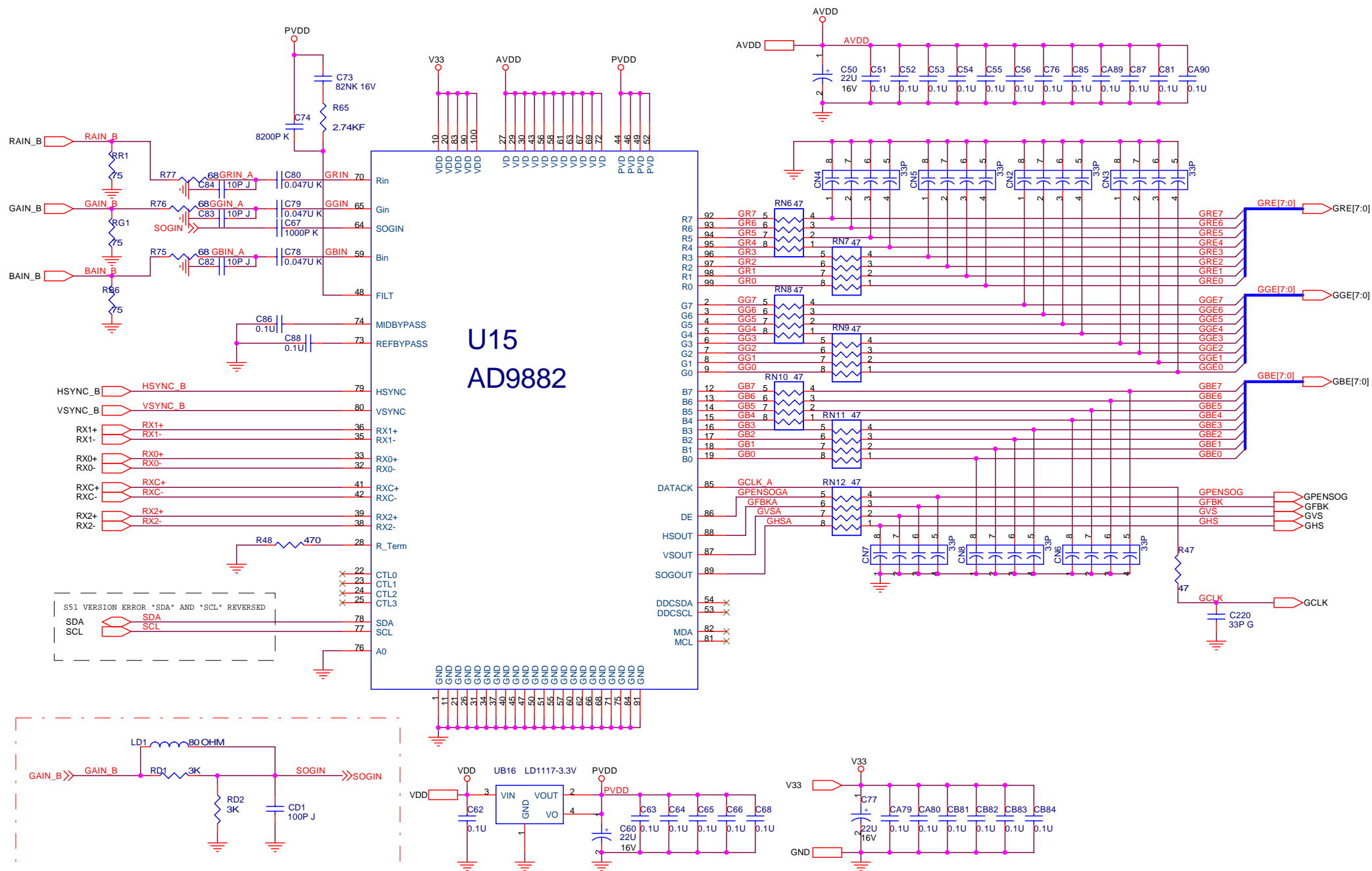
To repair lamp light detect signal from ballast before send to DDP1000 and main board.

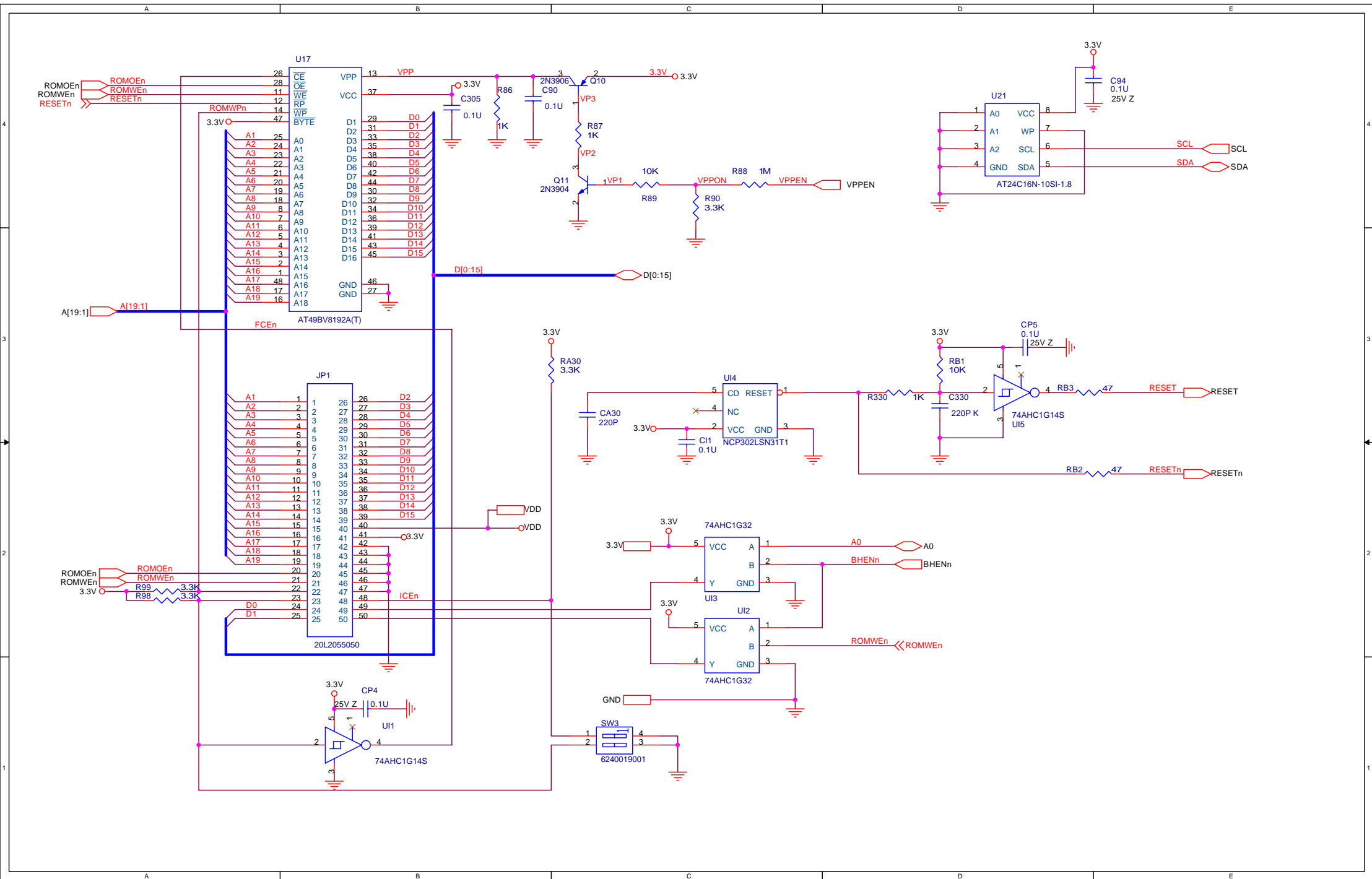


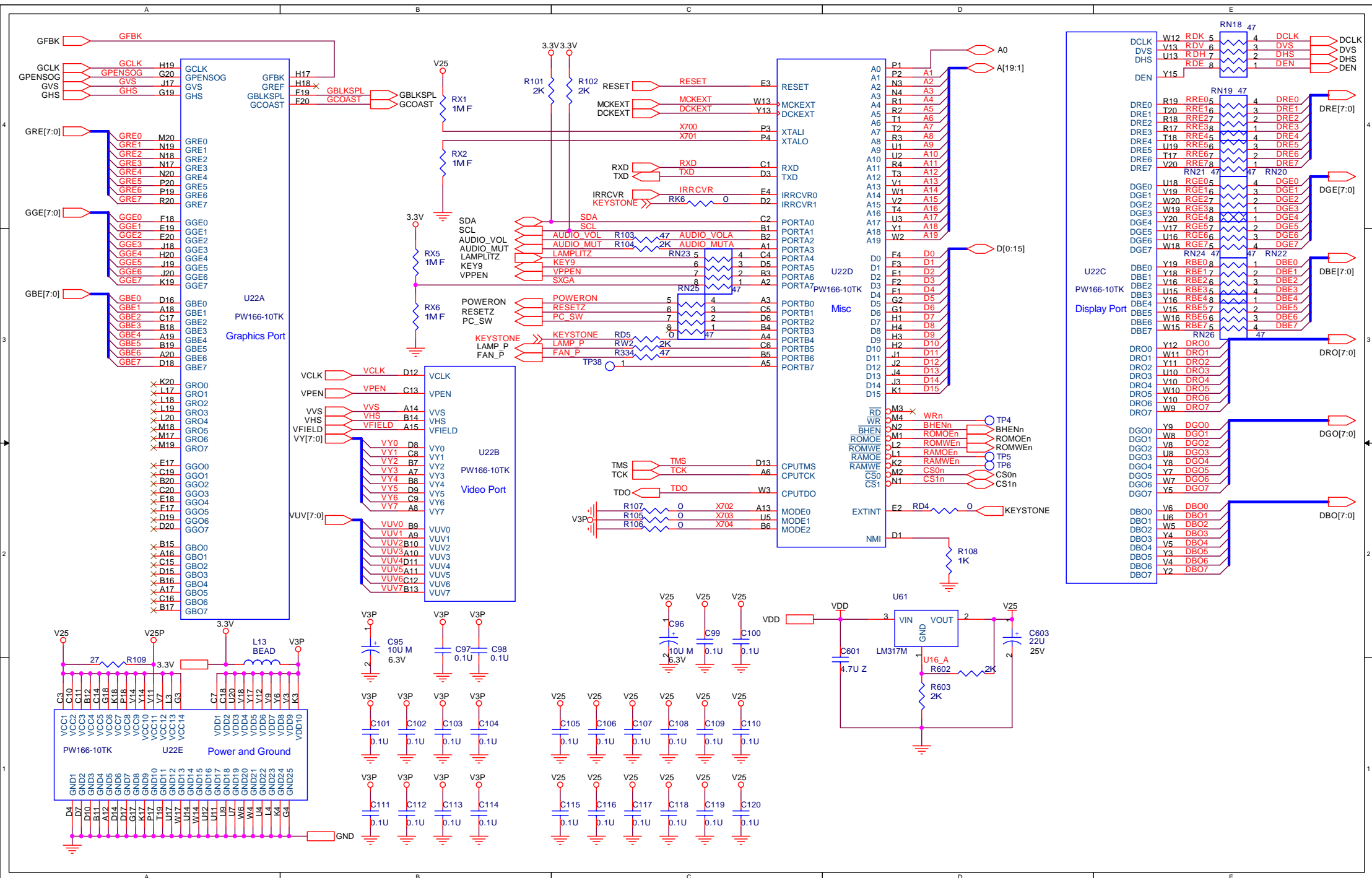


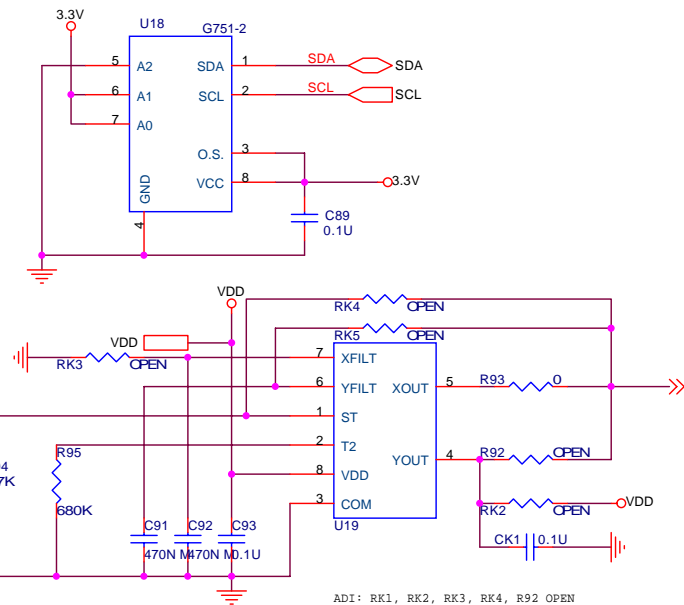
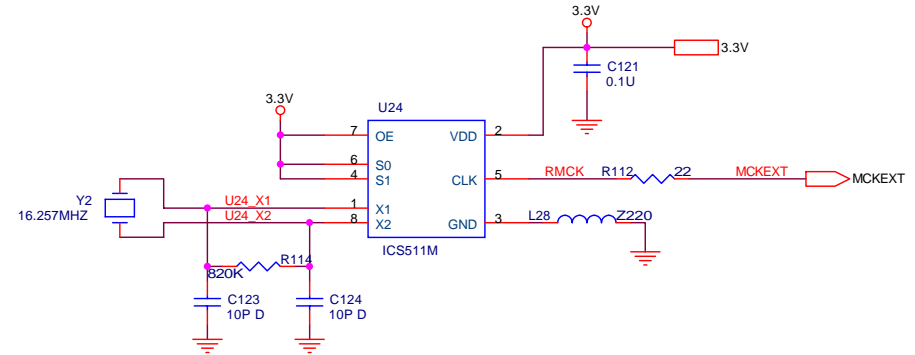
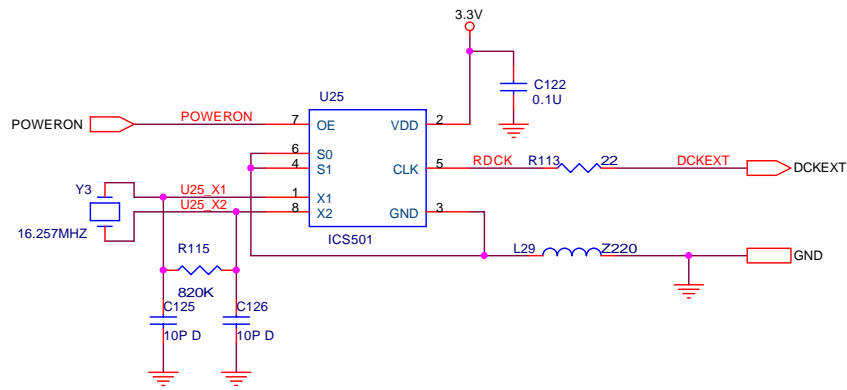




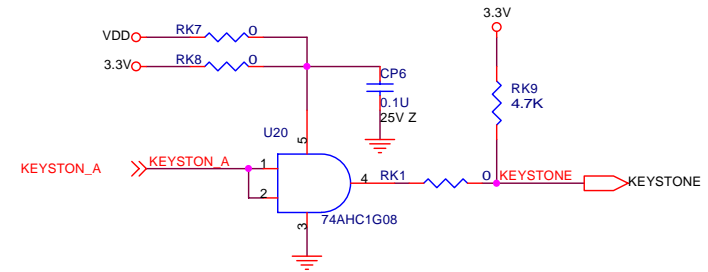


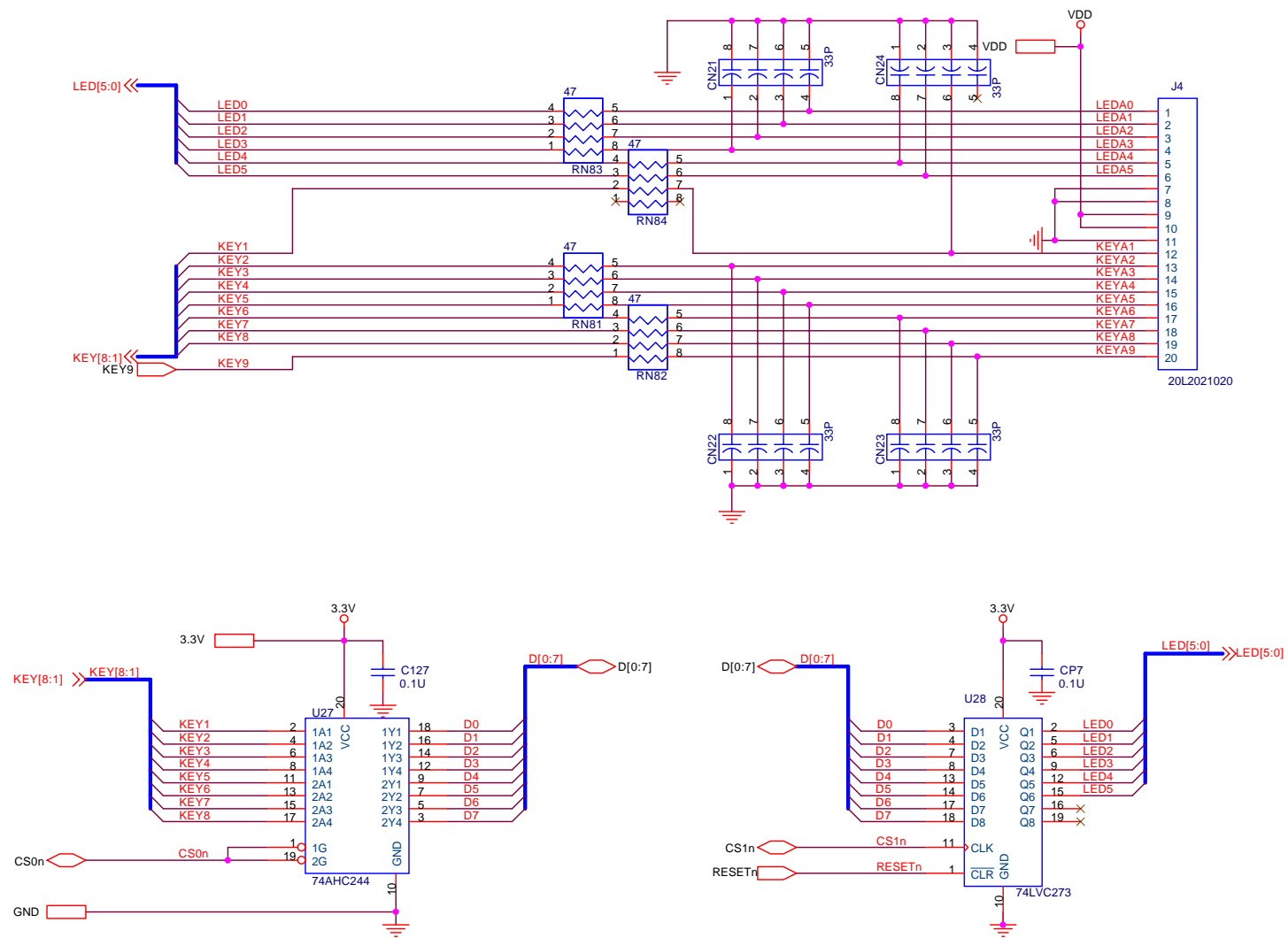




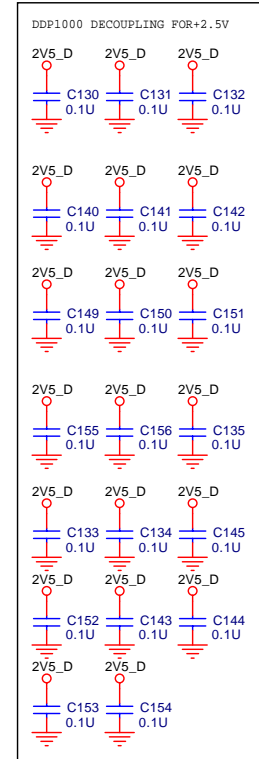
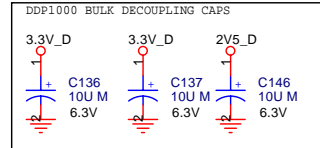
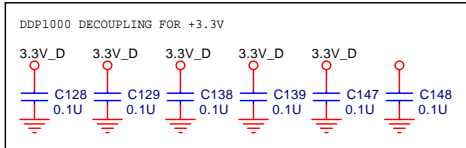
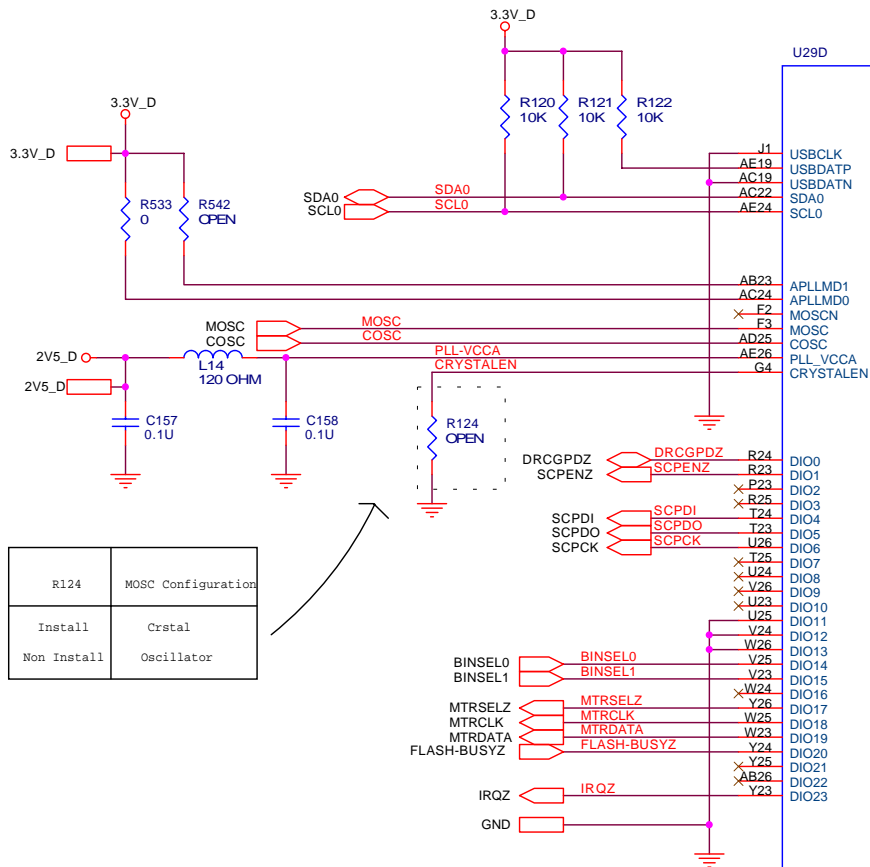


ADI: RK1, RK2, RK3, RK4, R92 OPEN
MEMSIC: R93, C91, R94, R95, R92, RK1, OPEN: RK2, RK3, RK4 0ohm
Note: keystone function IC and thermal sensor IC, those two component should be placement as closed as possible.

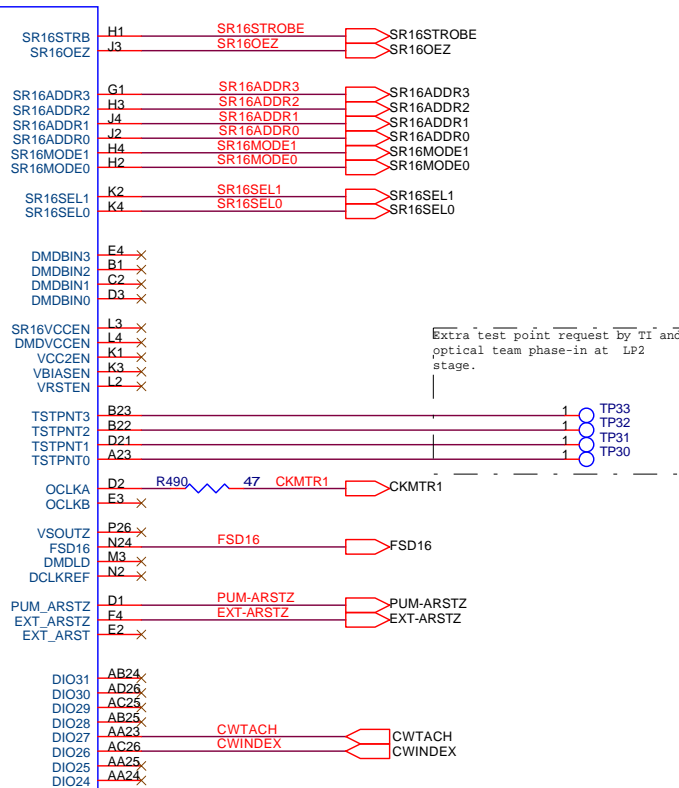


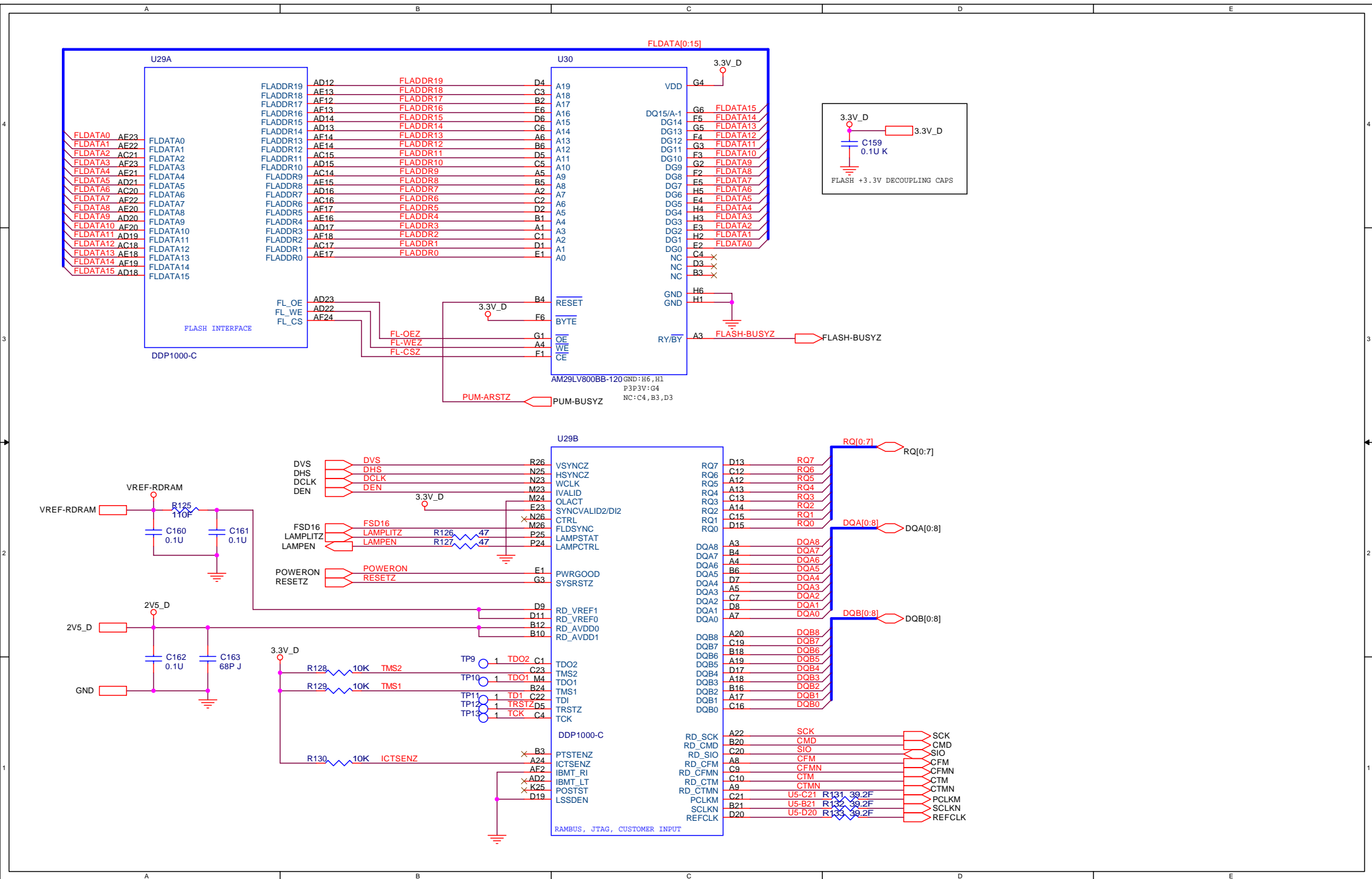


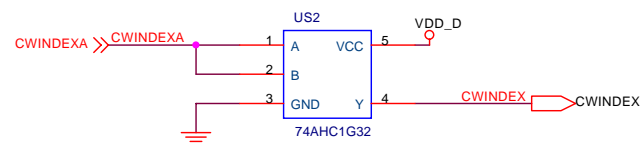
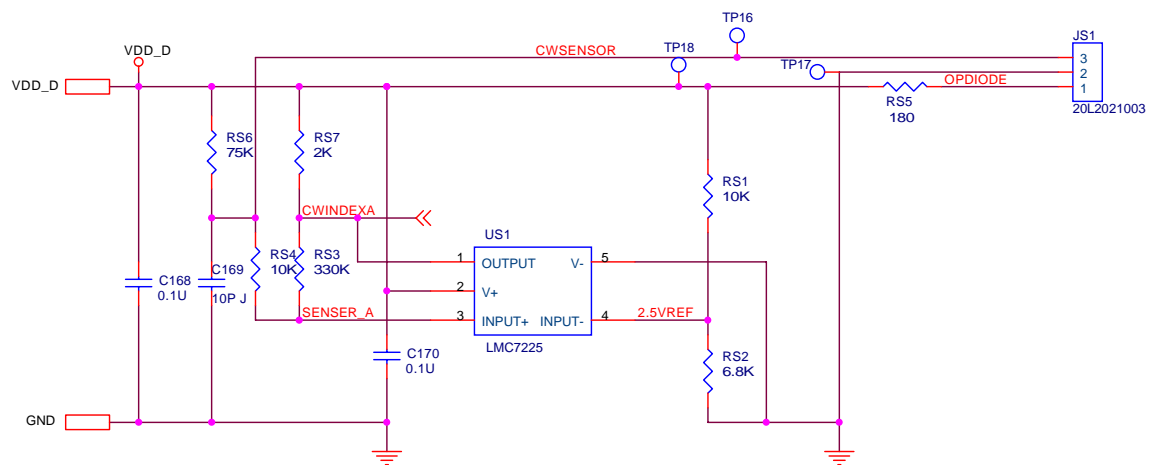
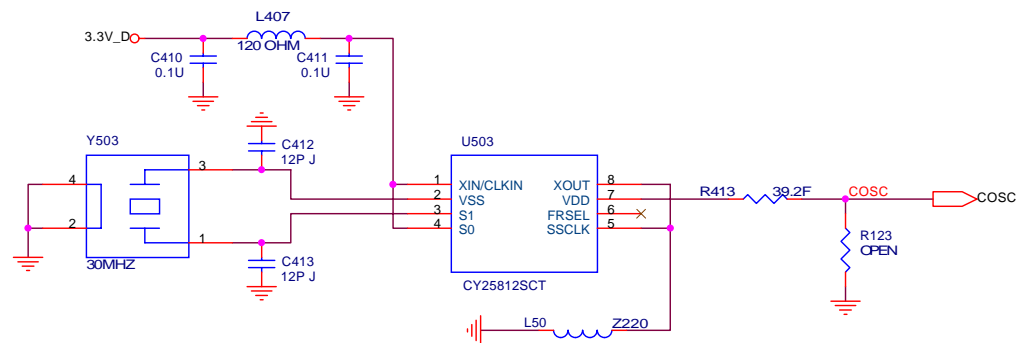
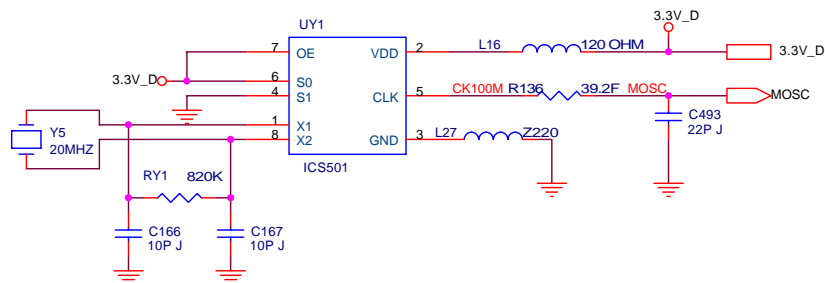
R124	MOSC Configuration
Install	Crstal
Non Install	Oscillator

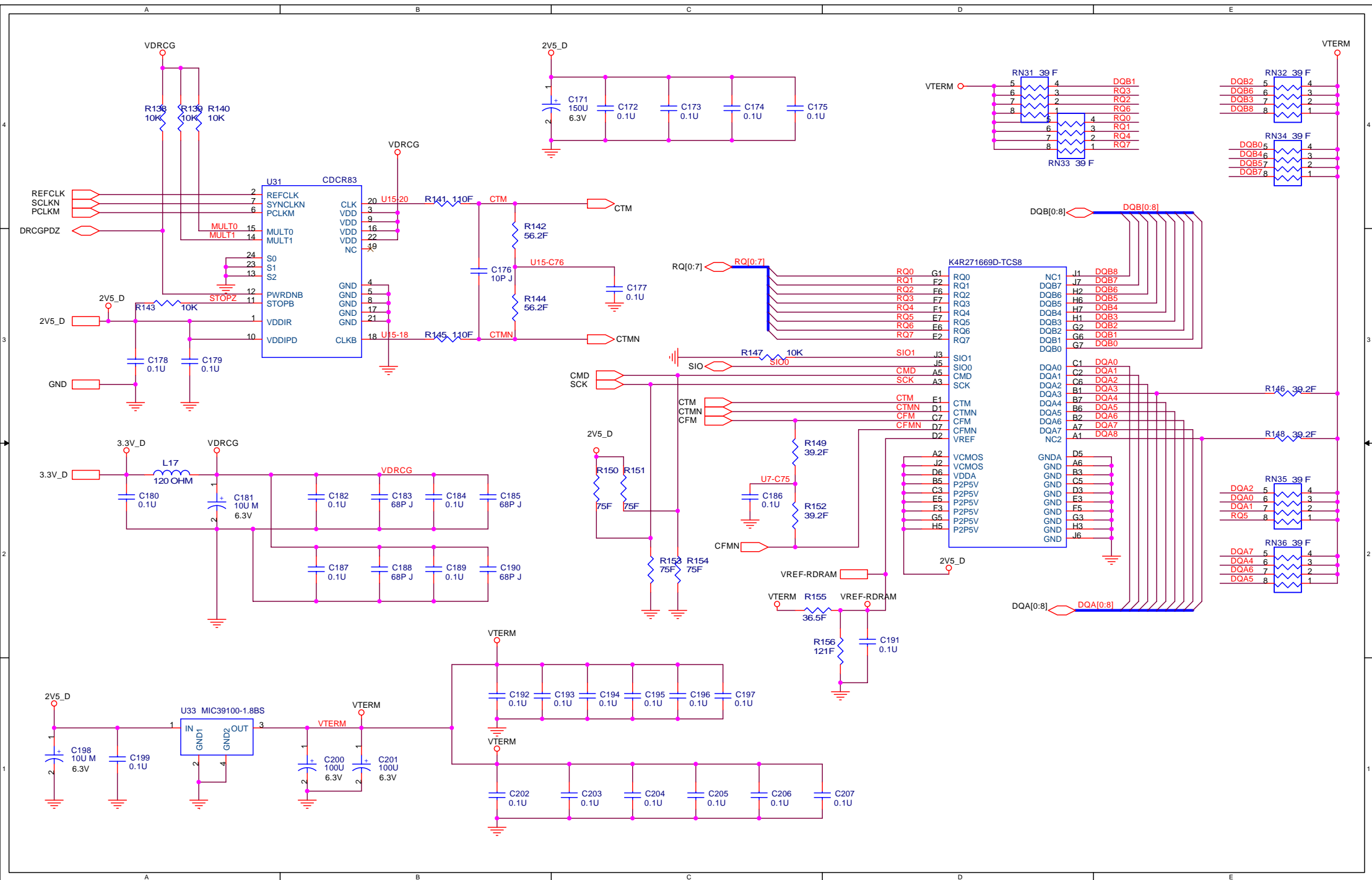


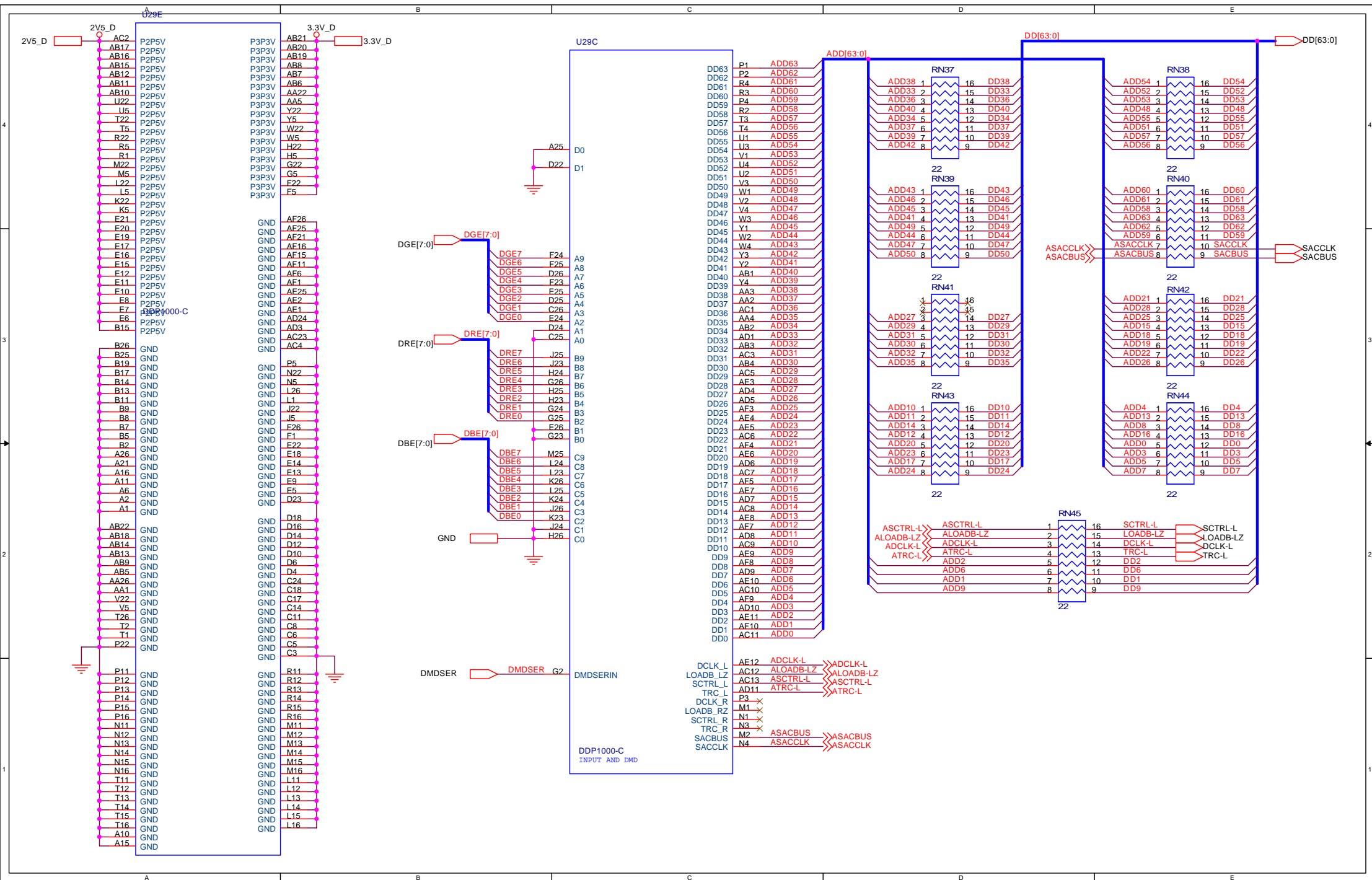
DDP1000-C

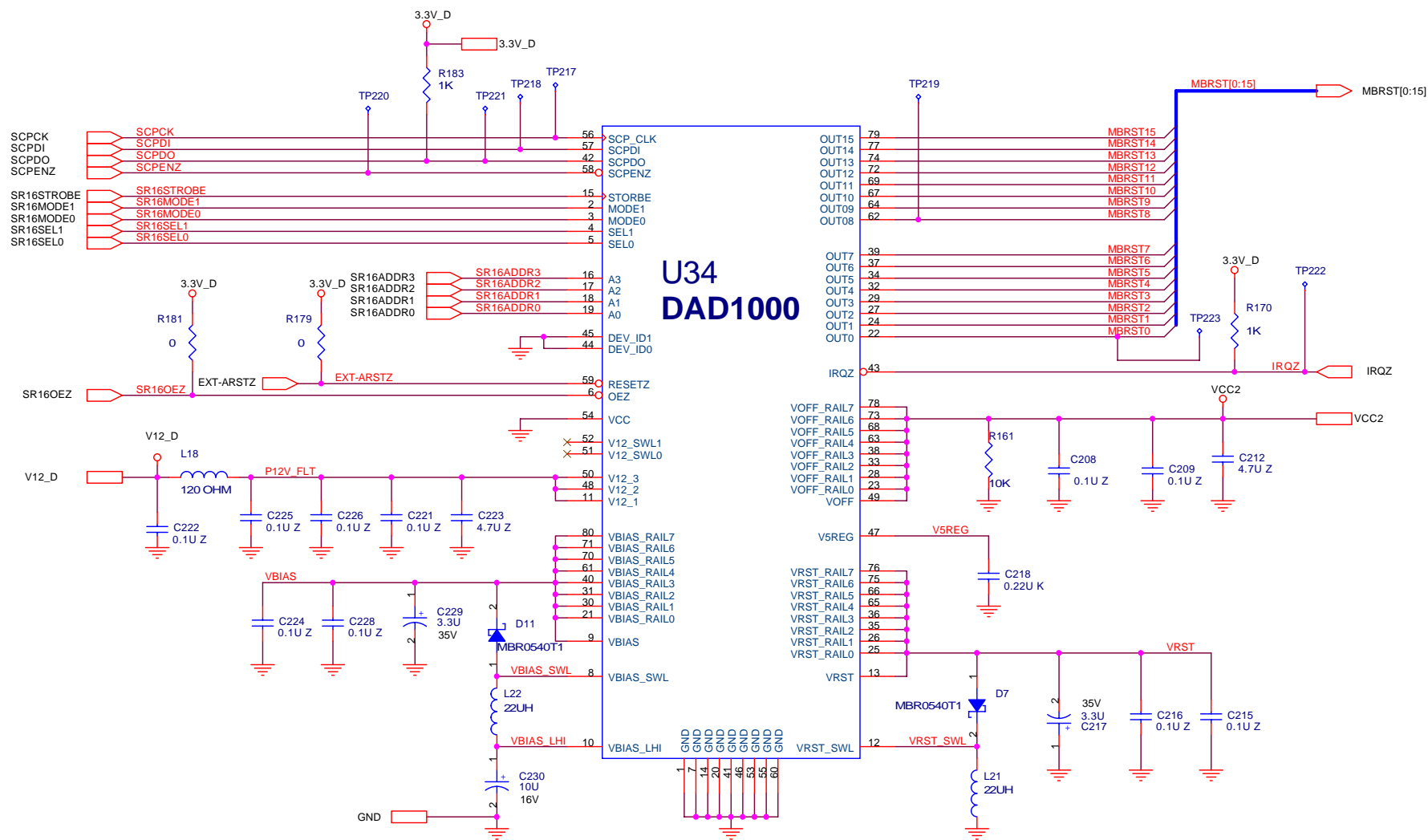


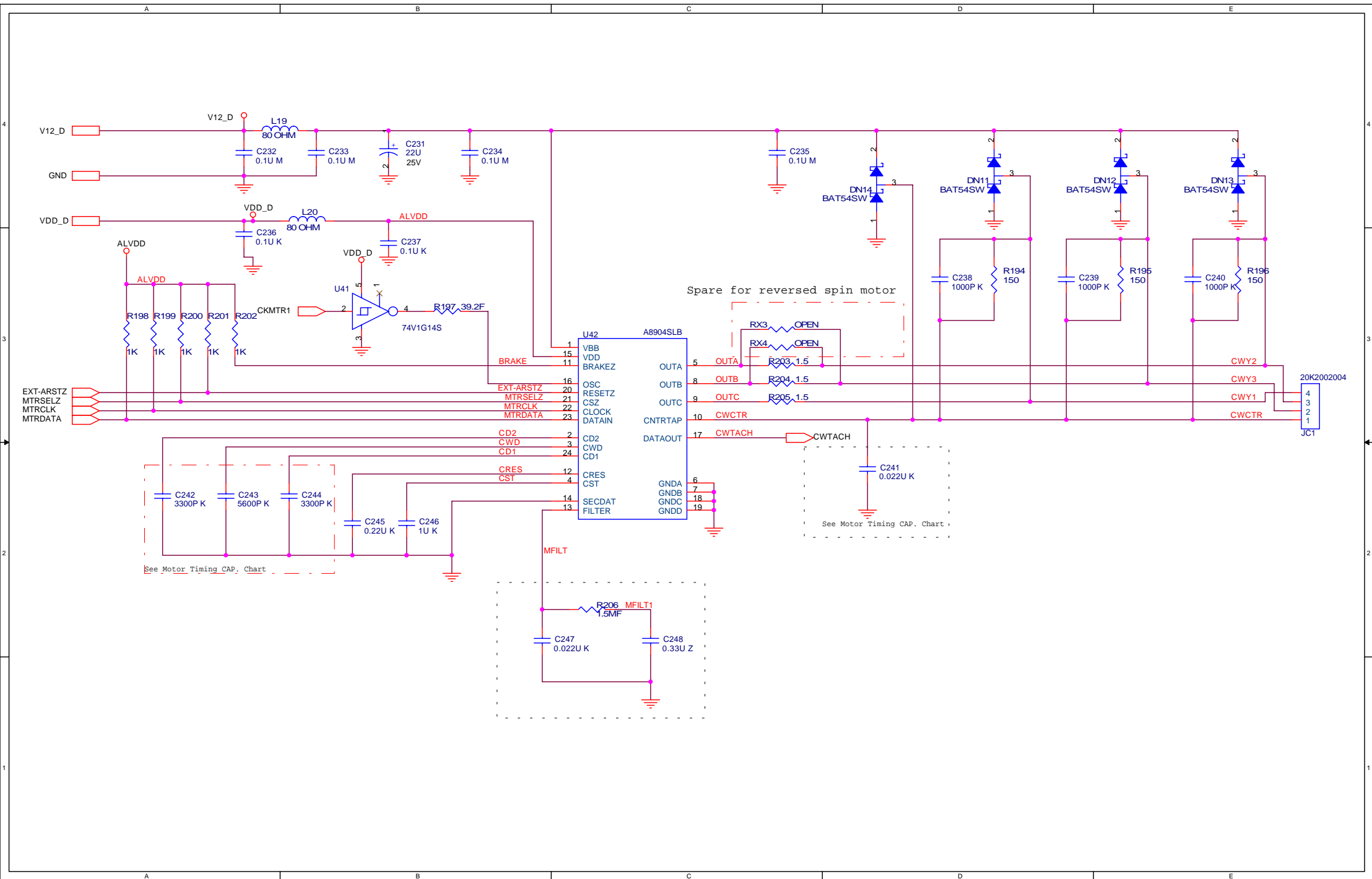


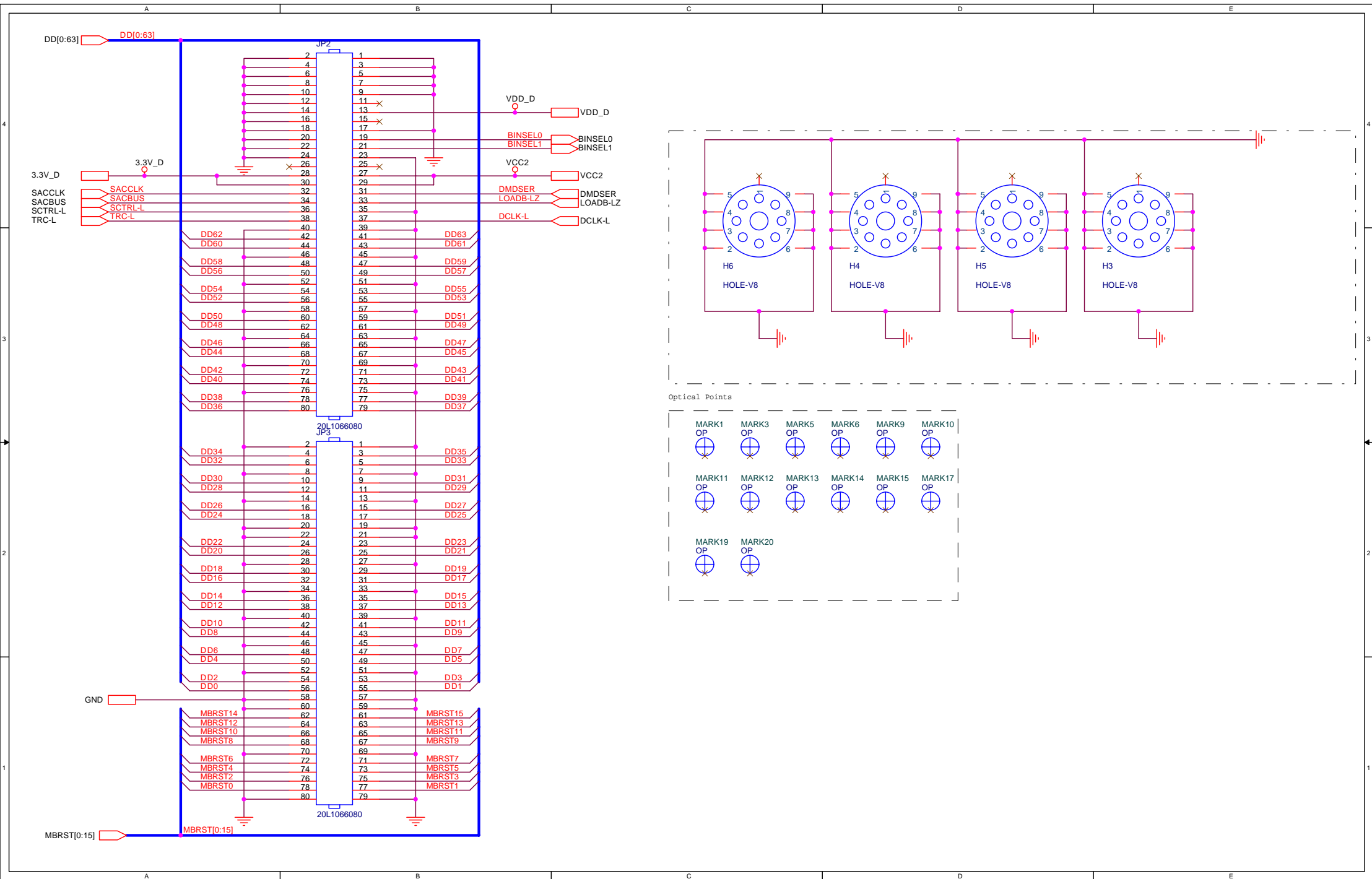


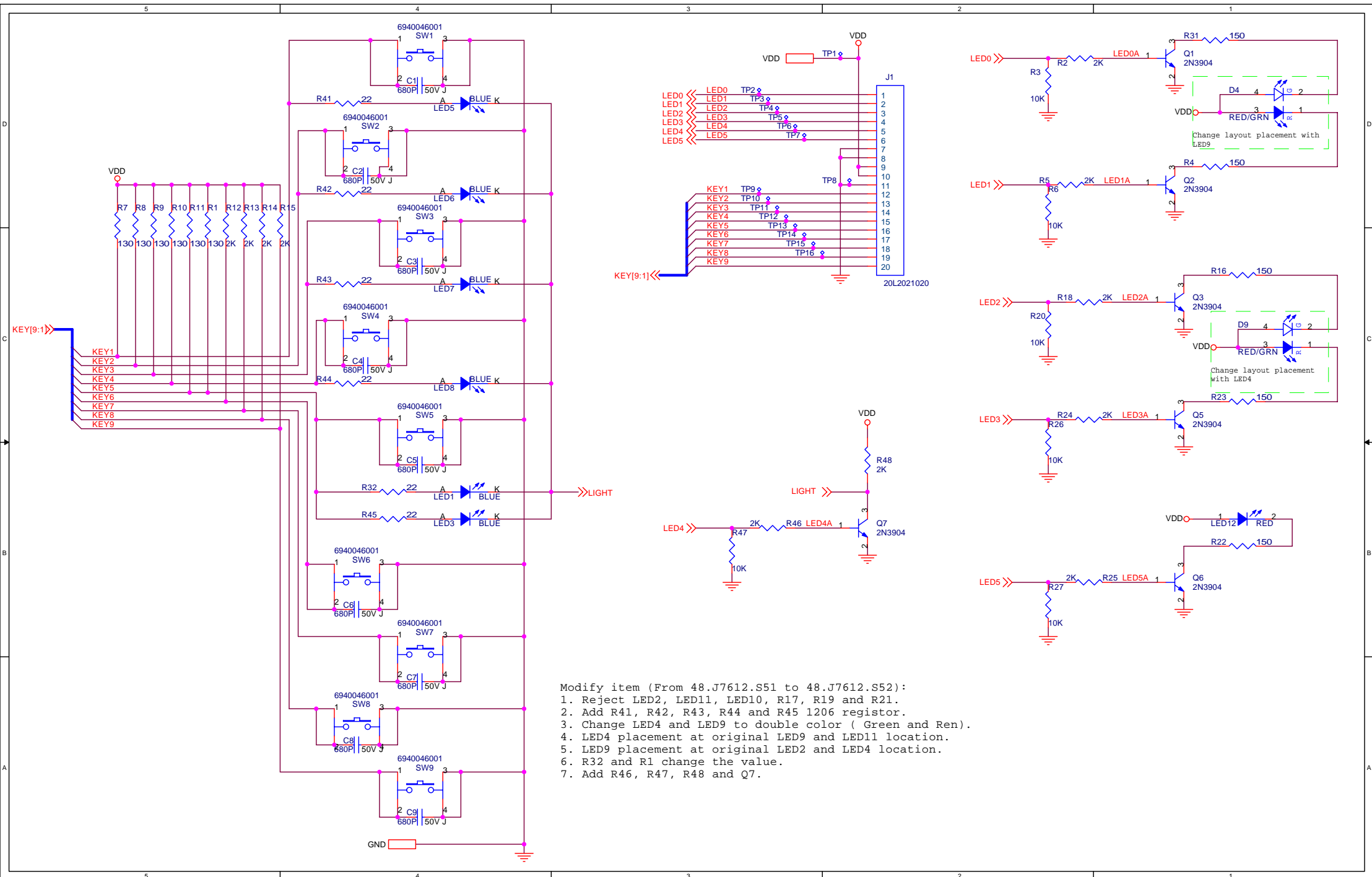


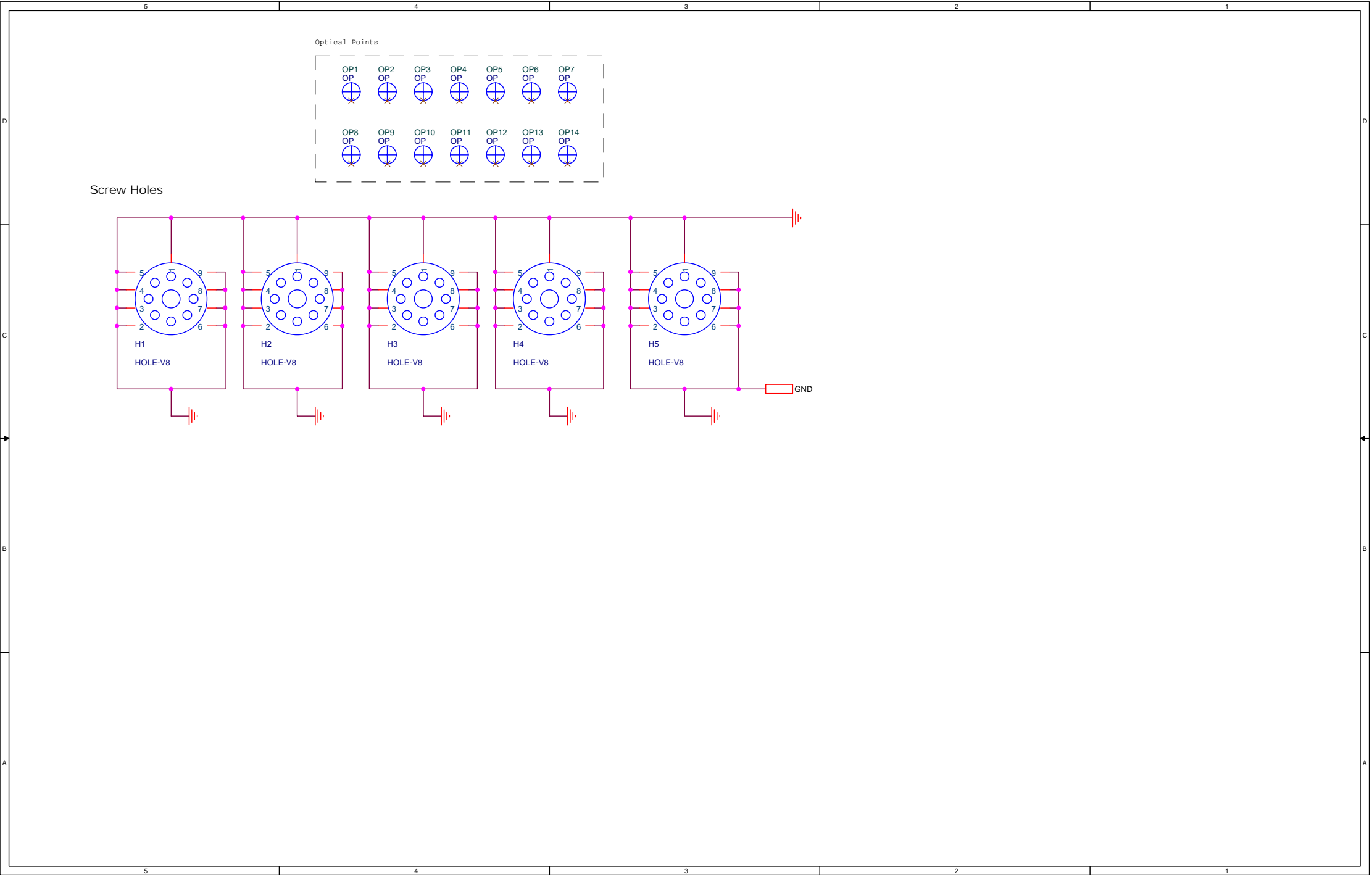




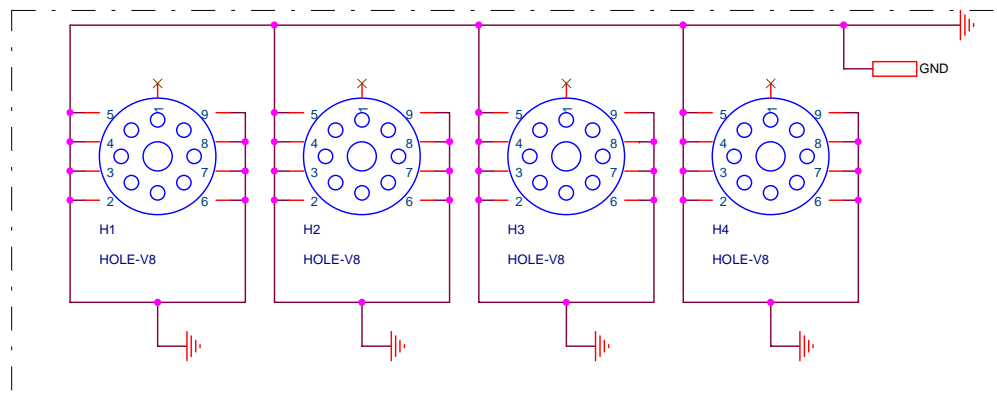




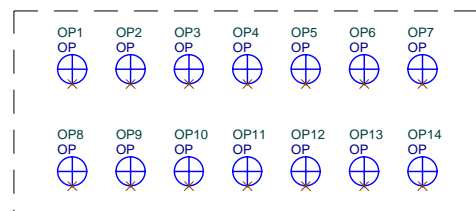




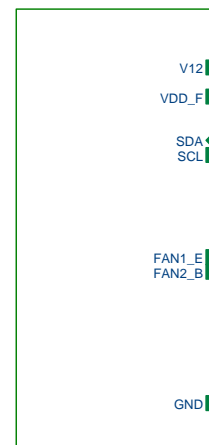
Screw Holes



Optical Points



POWER



FAN

